SYNTHESIS OF THE INCOME AND WEALTH OF THE ELDERLY: IMPLICATIONS FOR LONG TERM CARE

FINAL REPORT

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HEALTH CARE FINANCING ADMINISTRATION

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EXECUTIVE SUMMARY

Much of the debate over the desirability of expanding the federal role in financing long term care (LTC) centers on the economic status of the elderly (those age 65 and over). A key issue in the debate is whether the elderly can afford to pay for their own long term care costs directly from personal resources or through the purchase of private long term care insurance. If most can afford to pay privately, then many analysts would argue that there is less need for government involvement.

No single literature survey can hope to cover all of the past and current empirical and theoretical research predicting the savings and incomes of the elderly, not to mention studies of elderly poverty, or the problems of financing long term care. The purpose of this paper is to highlight some of these issues, and to indicate the degree to which definitive answers to these topics are currently known and/or actively debated.

I. THE CURRENT ECONOMIC STATUS OF THE ELDERLY

On average, the current elderly are well-off relative to the non-elderly and relative to their own pre-retirement years. Radner (1992) estimates that in 1990 mean household cash income (before taxes and adjusting for household size) of the elderly was approximately 65 percent of mean cash income received by non-elderly households. This picture changes when taxes and non-cash income sources are considered. The elderly have lower effective tax rates than the non-elderly because: 1) most are retired and therefore do not pay Social Security or other payroll taxes; and 2) much of their income (particularly Social Security benefits) is subject to little or no taxation. Furthermore, many elderly receive substantial levels of in-kind benefits--Medicare and Medicaid, subsidized housing, and food and nutrition programs. Most of the elderly (roughly 75 percent) own their homes, and most elderly homeowners (80 percent) own their homes free of any mortgage obligations; consequently, they are largely insulated from many of the high costs of housing. Radner estimates that these factors raise the average elderly/non-elderly post-tax income ratio to over 82 percent.

Except when certain types of medical expenses must be paid, the elderly on average require less income than the non-elderly to maintain the same standard of living. In addition to often living rent-free in owner-occupied housing, most elderly no longer have the expenses of working (e.g., their clothing and transportation expenses are lower), and they have accumulated a stock of durable assets (e.g., vehicles, appliances, etc.) which younger households are still in the process of purchasing.[1] On the other hand, they are vulnerable to the high out-of-pocket costs of both acute and long term care expenses.

Comparing the incomes of the elderly to those of the non-elderly may not be the best way of assessing the adequacy of the elderly's incomes. The replacement rate literature instead compares the incomes of the same group of people while young to their incomes after retirement. Fox (1982) finds that in the 1970s retired individuals have incomes that are on average 50 to 60 percent of earnings prior to retirement.[2] Boskin and Shoven (1987) net out the expenses of raising children and value retirement non-cash benefits, and thus estimate higher replacement rates--in the 150 to 170 percent range on average.

In addition to their relatively large home equity holdings, many elderly have sizable amounts of various financial assets. In fact, on average, the elderly tend to have larger amounts of financial wealth than the non-elderly. Radner (1989) estimates that median elderly household assets were 83 percent higher than the median level for all ages in 1984, and were just 18 percent lower than the median level for the wealthiest age group (age 55 to 64).

The income and wealth distribution of the elderly is heterogeneous and it misleading to analyze the income and wealth of the elderly in aggregate. Instead, one must look at the

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[1] The argument is often made that the elderly face substantial risks from inflation, since their incomes are "fixed". In fact, the major income source of the elderly, Social Security, is fully indexed against inflation. Two other income sources, the imputed income stream from home equity and asset income, are also largely protected from inflation risk. Home equity is a real asset, and real assets are a traditional inflation hedge. Most elderly do not hold their financial wealth in long-term bonds, which are most susceptible to inflation risk.

[2] Fox uses the ten years of earnings prior to retirement as his base; the four middle earnings years are averaged to determine pre-retirement earnings.

distribution of income and assets (Smith, 1995). This is particularly relevant for long term care financing: most users of long term care are single elderly persons age 75 and over. These elderly persons, often widows, are a particularly poor group with little assets.

II. THE PREVALENCE OF POVERTY AND THE RISK OF CATASTROPHIC UNFUNDED MEDICAL EXPENSES INCURRED BY THE ELDERLY

The elderly are a diverse group of individuals (in terms of their financial resources, their healthcare needs, and their savings and consumption behavior). If one looks at only the median and mean values of income and wealth for the elderly, the view is quite sanguine; the elderly appear to have adequate economic resources, particularly when compared to the non-elderly. When one digs beneath the surface, however, a different picture emerges. Approximately 58 percent of all single elderly and 16 percent of all married elderly have incomes below 150 percent of the poverty line (Lewin/ICF, 1989). Even those elderly individuals above the poverty line face substantial economic risks from healthcare expenses which can erode their incomes and assets and drive them into poverty.

A. Elderly Poverty Is A Major Concern

In 1960, approximately one-third of the elderly lived in poverty. During the past thirty-five years the rate of elderly poverty has steadily declined, with rates remaining fairly constant over the past decade. Much of this success is directly attributable to the real growth in Social Security benefits and other government programs. The Bureau of the Census (M. Shea, 1995) estimates that 9.4 percent of the elderly were in poverty in an average month in 1991, while the poverty rate was 10.5 percent for individuals aged 18 to 64 and 20.1 percent for individuals under 18.

A given rate of poverty, however, may have more serious implications for the elderly as a group than for the young. Studies by Hurd (1987a), Coe (1988), and the Bureau of the Census (M. Shea, 1995) suggest that poverty may last longer for the elderly than for the young, because the young are more likely than the old to escape from poverty through traditional means--employment, higher wages, and in some cases, marriage.

B. Elderly Widows Face Uncertain Futures

Rates of poverty among elderly widows are quite high relative to the elderly population. One reason for this is that many of the economic resources (e.g., annuities) of a couple die with the husband. Social Security benefits are reduced upon the death of a spouse and many of the private pensions among the current elderly do not have survivorship rights (although most pensions started after 1974 include survivor benefits). In addition, a household's net worth may erode due to the high medical costs associated with the end of the husband's life.

C. The Elderly's Risks Of Incurring Catastrophic Medical Expenses are High

Poor or not, the elderly experience higher chances of incurring large out-of-pocket medical expenses. Schultz (1988) estimates that in 1986 out-of-pocket medical expenses for the elderly averaged 16 percent of household income. Rubin and Koelln (1993) estimate that out-of-pocket medical expenses for low income elderly households (those households below the median elderly household income level) were approximately 13.6 percent of income between 1986 and 1988, compared to 6.6 percent of income for those elderly households above the median income level. For the low-income elderly, 42 percent of medical expenses went to purchase insurance (including Medicare premiums), 21 percent went for drugs and supplies, and 37 percent went for medical services (approximately one third of which went for long term care expenses).

The elderly are most at risk of catastrophic expenses for long term care. Medicare pays for only short (100 days or less) nursing home stays in skilled nursing facilities for medically necessary care following an acute care hospital stay, with heavy copayments starting after the 20th day, and Medicaid requires the elderly to exhaust most of their assets and income before qualifying for benefits. Kemper and Murtaugh (1991) estimate that 43 percent of all elderly will have a nursing home stay; 32 percent will have a stay of three months or more; 24 percent will have a stay of one year or more; and 9 percent will have a stay of five or more years. Since a year spent in a nursing home can cost nearly $40,000 (in 1995 dollars) or more, long term care looms as a large unfunded catastrophic expense.

D. The Elderly Are Unwilling Or Unable To Insure Against Catastrophic Risks

Despite evidence that nearly one-quarter of persons turning age 65 in 1990 are expected to require a year or more of care in a nursing home over the remainder of their lifetime and the fact that these nursing homes stays are very expensive, a relatively small percentage of the elderly have long-term care insurance (Kemper and Murtaugh, 1991). If one assumes that 90 percent of the policies in force are held by persons age 65 or older, less than five percent of the elderly have private long-term care insurance.

Estimates of the fraction of the elderly who can personally afford to pay for a year's nursing home stay range from 17 to 53 percent, depending on the criteria used to determine the amount of the elderly's assets and income that could be used to fund the stay (Lewin/ICF and the Urban Institute, 1991), the question becomes "what instruments are available for risk pooling?" The two current avenues of private pre-funding of LTC expenses are private LTC insurance policies and continuing care retirement communities (CCRCs). Cohen et al. (1993) describe the major characteristics of LTC policies purchased by "typical" elderly individuals in different income categories and estimate that as many as 35 percent of the elderly could afford (and qualify for) a basic LTC insurance policy. Most studies estimate lower market demand--in the 10 to 20 percent range.

Persons involved in the long-term insurance market have expressed concern about two major factors which act as barriers to purchasing and maintaining LTC insurance policies:

- Long-term care insurance is a product which is difficult to understand and which varies from company to company in ways that are not always obvious. Furthermore, the insurance is sold to consumers who often have limited knowledge and understanding of long-term care financing by agents who sometimes also have a limited knowledge and understanding of the product.
- Policies lock individuals into provisions that may not make sense for them or for the service delivery system several decades in the future.

Even if people have a clear understanding of the need for coverage offered by long-term care insurance, they may fail to purchase and maintain a policy because the premiums

are too expensive. For someone age 50 in 1993, an average policy with inflation protection cost $630 annually; at age 65, the same policy cost $1,452; and at age 79, the policy cost $5,076 (Coronel and Fulton, 1995).

Continuing care retirement communities (or "Life care" communities) integrate residence in a retirement community and LTC, often along with other services. Elderly individuals or couples pay large (often $100,000 or more) start-up fees and monthly maintenance fees in return for residence in the life care community and selected LTC coverage. While the long waiting lists for these communities indicates the potential for expansion, the high costs make such communities unaffordable for most elderly.[3]

Many other types of insurance and other private pre-funding options have been proposed, but the practicality of many of these instruments is speculative. For example, some analysts have considered using tax incentives to encourage the purchase of long term care insurance. Others have analyzed the possibility of increasing the elderly's current income flows from their assets by converting life insurance holdings and by drawing down home equity through so-called reverse annuity mortgages. Reverse annuity mortgages are available in all but three states (Alaska, South Dakota, and Texas), but high closing costs can make the effective interest rate on such loans very high, depending on the duration of the loan.

III. ECONOMIC THEORY AND THE ELDERLY: MODELING SAVINGS BEHAVIOR

While the previous discussion has highlighted some of the important economic conditions faced by the elderly, it cannot explain fully why the elderly are faced with these conditions, nor can this discussion accurately predict the future economic circumstances of the elderly. Many competing economic theories attempt (with limited success) to address these issues. A brief review of the three major theories of lifetime savings behavior and the related empirical evidence offers a starting point for understanding the economic status of the elderly.

[3] Even for the elderly who own their homes free and clear, the value of their home equity is frequently much less than the start-up fees for life care communities.

This consideration also provides a guide for predicting future trends in savings behavior and asset accumulation.

A. The Life Cycle Theory Is The Current Economic Paradigm

Certainly, the most pervasive and enduring theory of elderly savings is the life cycle theory, which was first fully developed in a series of seminal papers by Ando, Blomberg and Modigliani almost forty years ago. Much of the appeal of this theory lies in its simplicity and its intuitively plausible implications; namely, that the elderly will start to dissave in retirement to maintain consumption at or near pre-retirement levels. In addition, the fact that this model's implications are not particularly sensitive to changes in its assumptions adds to its attractiveness to economists.

Increasingly, however, economists have been forced to question their belief in this cornerstone theory of lifetime savings. Many empirical studies of the life cycle, particularly cross-sectional studies, fail to find that the elderly are dissaving at rates high enough to be consistent with the life cycle hypothesis. Empirically analyzing lifetime savings behavior presents many challenges, one of which is the availability of longitudinal data. Although cross-sectional data have been used to test dynamic theories (such as the life cycle theory) because of their timeliness and availability, these studies typically rely on strong assumptions. Thus, longitudinal studies which follow a group of individuals through time are required to properly test the life cycle theory.[4] While longitudinal studies of the life cycle (Hurd, 1990) find that the elderly dissave, other studies using the same data set (Friedman and Sjogren, 1981) find that dissaving seems to occur for the relatively wealthy elderly; the poor elderly appear to continue saving. This might indicate that the elderly wish to hold some minimum level of assets for

[4] Cross-sectional studies find it difficult to distinguish life cycle and cohort effects. Life cycle effects are determined by how behavior changes as one ages (i.e., do people stop saving when they reach retirement). Cohort effects result from changes in social conditions over time (i.e., someone born in 1920 has higher lifetime earnings, on average, than someone born in 1900). In a given cross-section, all people of a given age are born in the same year. When comparing the characteristics of people of different ages, life cycle and cohort effects become intermingled. With some rather strong assumptions, it is possible to control for cohort effects using cross-sectional data from multiple years, but it is much easier to distinguish cohort and life cycle effects using longitudinal data.

emergencies, and then will dissave assets in excess of this minimum to subsidize consumption, in accordance with the life cycle theory. Unfortunately, most longitudinal tests of the life cycle theory have used old (1970s) data. Even as more recent data sets become available, it is not clear what constitutes a valid test of this theory (Bernheim, 1987).

B. Precautionary Savings And Bequest Motives Offer Competing Views

In light of this evidence, economists have proposed other theories attempting to explain patterns of elderly saving. These new theories fall into two types–precautionary savings and bequest motives. Given uncertainties about the length of life or the potential for catastrophic expenses, the elderly may continue to save while old. While the reasoning behind this theory is sound, and while the elderly certainly appear to favor insurance against future economic risks (as witnessed by the overwhelming popularity of the Social Security and Medicare Programs), this theory has difficulty predicting the continued lack of an adequate insurance market for these risks (long life and/or catastrophic medical expenses), namely annuities.

An alternative approach focuses on the elderly's desire to make bequests to their children. Bequest motive theories can largely be divided into two types: 1) altruistic or non-strategic bequests, where parents wish to make bequests solely out of concern for their children's welfare and do not expect the bequest to alter their children's behavior; and 2) strategic bequests, where elderly parents use the bequest to alter some aspect of their children's behavior. Bernheim, Schleifer, and Summers (1985) present evidence supporting the existence of a strategic bequest motive.

IV. CONCLUSIONS

This review of the literature on the economic status of the elderly offers the following conclusions:

- **As a group, the elderly are doing well economically.** Incomes of the elderly are lower than the non-elderly, but this gap narrows when taxes and in-kind benefits are considered. On average, the elderly have among the highest wealth holdings of any age group, and rates of elderly poverty are comparatively low.

- **The elderly are a diverse group.** Simple comparisons of the elderly to other age groups (e.g., the non-elderly or those individuals nearing retirement--the 55 to 64 age group) often lose much of their value because the elderly are a very diverse group. The old elderly (i.e., those age 85 and over) as a group have significantly different economic circumstances than the young elderly (i.e., those age 65 to 74). Likewise, married elderly couples are much better off than single elderly individuals. Different subgroups of the elderly differ in their levels of income and wealth, in their savings and consumption behavior, in their level of risk aversion, and in their healthcare needs.

- **The elderly face substantial economic risks.** While rates of elderly poverty are low, a substantial proportion of the elderly have incomes between 100 percent and 200 percent of the poverty level. Consequently, large medical expenses can consume an elderly household's income and asset levels and drive them into poverty. Longitudinal studies find that many elderly, and especially elderly widows, will experience a stay in poverty, and leaving poverty is more difficult for the elderly than for the non-elderly. The elderly face relatively large probabilities of incurring unfunded catastrophic medical expenses, usually due to nursing home entry. Only a small portion of the elderly (approximately 5 percent) have long term care insurance, and many of those policies do not completely protect the policy holder from incurring large out-of-pocket expenses.

- **Economic theories of savings behavior are not in agreement with one another.** Several basic theories and their countless variations sharply disagree on both whether and why the elderly save. Testing these theories is challenging, since many do not yield refutable hypotheses. Researchers differ on what constitutes appropriate tests, and many data sources are poor or out of date.

CHAPTER 1:
THE CURRENT ECONOMIC STATUS OF THE ELDERLY

A discussion of the current economic status of the elderly serves at least two purposes. First, knowing the facts about the elderly's income and wealth is essential in evaluating their relative economic status and designing appropriate public policy. Second, such a discussion also reveals gaps in our current knowledge, suggesting possible avenues for new research. Information about the economic status of the elderly is of critical importance to policy makers responsible for long term care, given the expanding elderly population and the implications of this expansion on government long term care programs.

Most studies define the elderly as those individuals aged 65 and over. However, when comparing broad groups such as the "elderly" to the "non-elderly" one makes the implicit assumption that the group is relatively homogeneous. The elderly are certainly not homogeneous. The economic status, consumption and savings behavior, and healthcare needs of the "old" elderly (i.e., those 85 years or more) are very different than those of the "young" elderly (i.e., those 65 to 70 years old). Likewise, the resources, behavior, and needs of the single elderly differ from those of the married elderly, and the behavior and needs of the elderly living below the poverty line differ from those of the wealthy elderly. Because the elderly are a diverse group, where possible we provide descriptive statistics for different subgroups of the elderly--i.e., by age group, by marital status, and by income level.

This chapter will highlight a number of empirical studies which investigate the economic status of the elderly. To aid comparisons, the Consumer Price Index (CPI) is used to express most income and wealth amounts in 1992 dollars; exceptions will be noted. As another aid in exposition, details of the data sources and methodology used in selected studies' are presented in an appendix.

Limitations of the Data

Before one can interpret the income and wealth statistics found in the literature, one must first understand the limitations of the data. Without an understanding of these limitations, a casual reading of the empirical work summarized in this report may lead to flawed conclusions about the economic status of the elderly and trends in their income and wealth levels over time.

Numerous data sources have been used by researchers to analyze the income and assets of the elderly. The most widely used data sources are: the Current Population Survey (CPS), the Survey of Income and Program Participation (SIPP), and the Survey of Consumer Finances (SCF). The widespread use of these data sources can be attributed to their large, nationally-representative sample sizes; the amount of information collected in these surveys; the easy public access to the data, and the timeliness of the data (income and wealth data in these surveys are collected either annually, or every few years). These data sources are described in more detail through the text.

Estimates of income, wealth, poverty and other economic variables for the elderly are based on both cross-sectional data sources (e.g., the CPS) and longitudinal data sources (e.g., the SCF). Cross-sectional data give a point in time "snap-shot" picture, and allow comparisons between different age groups to be made at that instant. The basic limitation of cross-sectional data is that distinctions between cohort effects and life cycle effects cannot be made.[5] To highlight this point, suppose a cross-sectional study finds that people over the age of 75 in 1990 have lower incomes than people age 65 to 74. This may be caused by the lower lifetime earnings of the older group (a cohort effect), and/or the declining incomes as people age and consume their savings (a life cycle effect). To separate these two effects, a group of elderly of different ages must be tracked longitudinally through time. Although pooled cross-

5 A cohort is defined as a group of individuals born in the same time period. For example, the 65-70 year old cohort in 1995 is that population of the elderly born between 1925 and 1930.

sectional data can be used to some extent to mimic a longitudinal study, the use of a different sample of individuals in each time period limits the types of analyses that can be used to assess the reasons why a cohort's income and wealth change over time.

While longitudinal data allow cohort effects to be distinguished from their life cycle counterparts, a few caveats are in order. Many of the elderly who are selected into a longitudinal data set are lost to the data set (sample attrition) through death, entry into a nursing home, or simply because data collectors can no longer find them. Coping with sample attrition is very difficult; typically, researchers are forced to restrict the sample to the community elderly who have not died, or their surviving spouses. Restricting the data set to "sample survivors" makes generalizing the results of a particular study to the entire population of the elderly almost impossible, as sample survivors are not a random sample of all of the elderly. For example, in measuring the number of elderly who enter poverty over a ten year period, eliminating those who leave the sample through death underestimates the cumulative chance of experiencing poverty, as poverty is positively related to mortality. Interpreting studies using longitudinal data should be done cautiously and should carefully consider the characteristics of the sample and methods employed in each study.

Another limitation is that wealth (and, to a lesser degree, income) is underreported in survey data. This conclusion is based on comparisons of estimates using survey data to estimates from other sources, such as tax data and Federal Reserve Board balance sheet data. The Bureau of the Census (Eargle, 1990, p.1) notes that: "...the holdings of certain types of wealth tend to be underreported in household surveys. The distribution of wealth is known to be highly concentrated. When the distribution is so concentrated, the normal sample frame, with few observations for high income households, has large variability in the various wealth statistics for this segment of the wealth distribution." Many surveys have tended to oversample minority groups and low-income groups because these groups have generally received much more research attention (for policy purposes). Few surveys have oversampled the wealthy in order to ensure sufficient sample size to compute reliable estimates of their income and wealth, the Survey of Consumer Finances (SCF) being an exception.

I. LOOKING AT ELDERLY INCOME AND WEALTH FROM AN ECONOMIC PERSPECTIVE

The perspective in this chapter and the rest of this paper is primarily an economic one. This choice is not meant to suggest that economics is the only or even the best discipline for analyzing the income and wealth of the elderly (or indeed, any demographic group). One reason people find it difficult to save and postpone consumption is the self-discipline such a choice requires, and understanding self-control and delayed gratification falls more into the realm of psychology than economics. Perhaps the most important reason for analyzing the income and wealth of the elderly from an economic perspective, however, is to understand the limits of economic analysis. These limits largely fall into two classes: 1) economic theories (and empirical analyses) often sharply disagree with each other; and more importantly, 2) many (if not most) personal savings and consumption decisions are made for what appear to be non-economic reasons.

Despite these limitations, substantial empirical economic research on the income and assets of the elderly have been done over the past decade--reflecting the policy interests associated with the general aging of the population and the cost of programs benefiting the elderly, the availability of large micro-level data sets, and advances in computer technology which has facilitated the use of complex econometric techniques and the use of large data sets.

II. INCOMES OF THE ELDERLY ARE LOWER THAN THOSE OF THE OVERALL POPULATION, BUT ARE USUALLY "ADEQUATE"

A common proxy for economic well-being is income; however, from an economic perspective, the truly important measure of welfare is consumption.[6] Consumption is difficult to

[6] From a theoretical perspective, the best measure of a person's welfare is the utility he or she derives from his or her consumption bundle. Utility, however, is an ordinal concept (i.e., it measures whether a particular person prefers one consumption bundle to another), not a cardinal measure (i.e., it does not indicate to what degree one consumption bundle is preferred to another). In addition, this ordinal measure cannot be compared across individuals, rendering it useless as a practical measure.

measure, and valuing certain types of purchases, particularly durable goods, is not easy. Given its strong correlation with consumption, income measures are often used to assess economic status. Using income as a measure of economic welfare may be less appropriate for the elderly than for the non-elderly. If the elderly have saved in the past, accumulating savings for their retirement, in the absence of a bequest motive or strong risk aversion concerning future economic uncertainty and/or potential catastrophic expenses, the elderly can use their savings to maintain consumption at a level exceeding income.

The elderly's income may appear to be small when compared to that of the non-elderly (estimates in the literature of the ratio of median income of the elderly to median income of the non-elderly range from 46 to 83 percent, depending on the definition of income used). However, several factors argue against the impression that the elderly are "worse off" economically. Most of the elderly no longer face the expenses of raising children or working, they often live in unmortgaged homes, and they have already acquired many of the durable goods younger families do not have (e.g., furniture, household appliances, etc.). Consequently, they may require less income to maintain their current standard of living.

Furthermore, incomes are higher now than in the past. Comparing incomes of the current elderly to the current non-elderly will result in lower elderly/non-elderly income ratios than comparing the elderly's current incomes to their own incomes prior to retirements (replacement rates). Comparing income and wealth levels of the elderly to income and wealth levels of the non-elderly is useful for describing how well-off the elderly are compared to the non-elderly, while replacement rates are useful for comparing how well-off the elderly are compared to their own past.

A. What Are The Incomes Of The Elderly And Non-Elderly?

Below, we summarize current estimates of the income of the elderly and non-elderly. To make comparisons among these various estimates, more easily, we have converted all income estimates into 1992 dollars, by inflating (or deflating) these measures from the year

reported using the change in the Consumer Price Index for Urban Consumers (CPI-U). Any exceptions are noted in the text. In subsection A, we also converted wealth and asset estimates to 1992 dollars using the same methodology.

One other important issue when making income (or wealth) comparisons across age groups and through time is the difference between cohort and life cycle effects. Cohort effects result from changes in social conditions over time (i.e., someone born in 1920 has higher lifetime earnings, on average, than someone born in 1900. Life cycle effects are determined by how behavior changes as one ages (i.e., do people stop saving when they reach retirement). In a given cross-section, all people of a given age are born in the same year. When comparing the characteristics of people of different ages, life cycle and cohort effects become intermingled.

It is possible to distinguish cohort and life cycle effects using cross-sectional data from repeated years. To measure cohort effects, one compares income for individuals of the same age in two different years -- e.g., persons age 65 to 74 in 1980 and 1990. Apart from sampling error, the differences in income for these two cohorts provide a measure of the cohort effect. To measure life cycle changes, one must follow the same cohort through time -- e.g., persons age 65 to 74 in 1980 and persons age 75 to 84 in 1990. The difference in income for this cohort in the two years provides a measure of a life cycle effect. One may adopt the same techniques to distinguish cohort and life cycle effects using longitudinal data.

1. Consumer Population Survey

The Current Population Survey samples a nationally representative sample of approximately 160,000 persons. Although the survey is conducted monthly, only the March survey asks detailed information on the types and amounts of income received by each household, in addition to the normal demographic data collected. Because income data are collected annually in the CPS, it provides a both a rich and current source of data on the socio-economic makeup of the U.S.

A 1994 report by the Employee Benefit Research Institute (EBRI) contains a summary of mean income levels from March 1974 to March 1992 for the population aged 55 and older (see Table 1-1) using the March 1975 through March 1993 CPS. As expected, mean income is negatively correlated with age for elderly individuals. As noted previously, a "snapshot" picture of income by age category captures both a cohort and a life cycle effect. Reading across each row provides a measure of cohort effects. For example, the 55-59 year old cohort (in 1974) has a much higher average income in 1989 (when they are 70-74 years of age) than the 70-74 year old cohort in 1974 ($16,190 versus $11,863 in 1992 dollars). Cohort incomes are increasing primarily because of increases in pension and asset income. To measure life cycle effects, one must read across the table diagonally to follow the same cohort through time. The shaded cell entries follow the cohort born from 1935 to 1929. Incomes for this and for other cohorts appear to be falling steadily through time.

Table 1-1

Mean Incomes of Individuals Aged 55 and Over, Selected Years 1974-1992

(1992 Dollars)

Age	1974	1979	1984	1989	1992
Total Income					
55-59	$21,382	$22,942	$22,002	$24,604	$23,565
60-64	19,096	19,596	19,692	21,867	20,274
65-69	14,104	14,251	16,059	18,282	16,922
70-74	11,863	12,700	14,646	16,190	15,100
75+	10,614	11,089	12,586	13,728	13,172
Old-Age, Survivors and Disability Insurance; includes railroad retirement					
55-59	451	482	393	448	497
60-64	1,554	1,829	1,929	2,125	2,096
65-69	4,760	5,104	5,546	5,363	5,683
70-74	5,401	5,716	6,157	6,715	6,195
75+	5,343	5,487	5,819	6,450	6,624
Pensions and annuities					
55-59	799	1,164	1,097	1,636	1,525
60-64	1,222	1,796	2,246	2,873	2,899
65-69	2,007	2,165	2,627	3,546	3,488
70-74	1,862	2,073	2,295	2,970	3,351
75+	1,582	1,437	1,635	2,018	2,354
Income from assets					
55-59	1,270	1,846	2,484	2,545	2,077
60-64	1,643	2,088	3,085	3,083	2,291
65-69	2,209	2,603	3,739	3,888	3,130
70-74	2,204	2,724	4,257	4,129	2,942
75+	2,271	2,853	4,156	4,057	3,063
Earnings					
55-59	18,275	18,858	17,471	19,351	18,705
60-64	14,254	13,273	11,872	13,148	12,254
65-69	4,612	3,950	3,726	4,963	4,167
70-74	1,909	1,767	1,498	1,930	2,140
75+	1,074	788	569	767	711
Other					
55-59	588	592	557	623	760
60-64	423	609	559	638	734
65-69	517	429	422	522	455
70-74	488	420	438	446	472
75+	346	524	408	436	420

Source: Employee Benefit Research Institute (1994, Appendix table 2.9) tabulations of the March Current Population Surveys (1975, 1980, 1985, 1990, 1993).

EBRI also tabulated mean and median income levels for the elderly, categorized by income quintile, for the years 1974-1992 (see Tables 1-2 and 1-3). These five income quintiles divide the income distribution of the elderly into five groups of equal size. Between 1974 and 1992, the differences in mean income between the elderly in the highest and lowest income quintiles narrowed For example, the mean income of individuals in the lowest quintile increased by 85 percent, a much greater rate of increase than that of he highest quintile (16 percent). These differences in the growth in mean incomes implied that the ratio of the mean income for the highest quintile to the mean income for the lowest quintile declined from 17.5 to 1 in 1974 to 10.9 to 1 in 1992. Despite the rapid 85 percent rate for growth from 1974 to 1992, the mean income of the lowest quintile in 1992 is still only $9,436.

Lewin/ICF (1989) produced similar tabulations for the elderly population, detailing the contributions to average pre-tax total income from each income source listed in the March 1988 CPS (see Table 1-4). Whereas EBRI's tabulations present mean income estimates for individuals in each age bracket and income quintile, the Lewin/ICF study reports mean household incomes, categorized by poverty levels. The main findings obtained from the Lewin/ICF tabulations are similar to those found in other studies. Single elderly households, as a group have lower incomes than aged married couples ($13,994 versus $33,925 in 1992 dollars), and a larger percentage of them are in poverty (33 versus 6 percent). Social Security is a major source of income for the elderly, but constitutes a larger proportion of total income for those individuals in lower income brackets. While Social Security accounts for approximately 74 percent of total income for married elderly couples with incomes below the poverty line (80 percent for single elderly) it accounts for only 22 percent of total income for those with incomes more than triple the defined poverty threshold (20 percent for single elderly). The low incomes of single individuals have important implications for long term care, because so many long term care users are single individuals.

Table 1-2

Mean Incomes of Individuals Aged 65 and Over, Selected Years 1974-1992 by Income Quintile

(1992 Dollars)

Year	Total	Lowest	2	3	4	Highest
Total Income						
1974	$12,239	$1,857	$5,549	$8,252	$12,950	$32,417
1979	12,673	3,102	5,984	8,764	13,458	31,524
1984	14,347	3,520	6,529	9,672	15,295	36,204
1989	15,942	3,678	7,091	10,744	16,918	41,099
1992	14,899	3,436	6,730	10,183	15,712	37,483
Old-Age, Survivors and Disability Insurance; includes railroad retirement						
1974	$5,142	$1,645	$4,313	$6,157	$7,169	$6,467
1979	5,412	2,455	4,708	6,298	6,982	6,471
1984	5,817	2,822	5,202	6,585	7,345	7,080
1989	6,148	2,997	5,588	7,010	7,748	7,343
1992	6,206	2,838	5,460	7,092	7,929	7,642
Pensions and annuities						
1974	$1,709	$29	$127	$378	$1,871	$6,093
1979	1,875	35	124	493	2,115	6,489
1984	2,158	43	180	790	2,822	6,847
1989	2,794	72	269	1,139	3,574	8,886
1992	2,991	71	218	1,081	3,597	9,703
Income from assets						
1974	$2,230	$70	$243	$611	$1,821	$8,340
1979	2,727	221	546	1,150	2,621	8,947
1984	4,039	262	557	1,593	3,590	13,968
1989	4,018	245	643	1,734	3,784	13,631
1992	3,051	226	539	1,286	2,603	10,297
Earnings						
1974	$2,607	($59)	$155	$400	$1,476	$10,962
1979	2,199	9	99	341	1,330	9,090
1984	1,912	7	100	356	1,260	7,710
1989	2,513	7	120	534	1,450	10,415
1992	2,207	(12)	104	434	1,201	9,024
Other						
1974	$552	$172	$711	$706	$613	$554
1979	461	382	507	481	409	526
1984	421	387	490	348	277	600
1989	468	357	470	328	361	824
1992	445	313	408	290	382	818

Source: Employee Benefit Research Institute (1994, Appendix table 2.7) tabulations of the March Current Population Surveys (1975, 1980, 1985, 1990, 1993).

Table 1-3

Median Incomes of Individuals Aged 65 and Over, Selected Years 1974-1992

by Income Quintile

(1992 Dollars)

Year	Total	Lowest	2	3	4	Highest
Total Income						
1974	$8,674	$3,159	$5,576	$8,203	$12,806	$24,958
1979	8,795	3,620	5,933	8,678	13,296	24,705
1984	9,659	3,971	6,520	9,550	15,107	28,248
1989	10,765	4,222	7,085	10,657	16,689	32,226
1992	10,200	4,020	6,684	10,085	15,473	28,527
Old-Age, Survivors and Disability Insurance; includes railroad retirement						
1974	$6,033	$3,113	$4,849	$6,884	$7,581	$8,135
1979	5,798	3,252	5,054	6,903	7,322	7,730
1984	6,234	3,476	5,585	7,010	1,822	8,063
1989	6,504	3,647	5,998	7,565	8,161	8,554
1992	6,420	3,600	5,846	7,534	8,248	8,842
Pensions and annuities						
1974	$5,123	$1,605	$2,224	$2,151	$4,013	$9,904
1979	4,824	1,353	1,480	1,836	4,360	9,647
1984	4,694	981	1,252	2,112	4,930	10,030
1989	5,211	1,109	1,358	2,636	5,567	11,812
1992	5,076	1,000	1,272	2,280	5,194	12,000
Income from assets						
1974	$1,821	$484	$598	$953	$1,931	$5,265
1979	1,353	291	580	966	2,019	4,831
1984	2,067	317	652	1,408	3,260	10,431
1989	1,923	311	623	1,513	3,337	8,969
1992	1,200	217	500	1,000	1,904	4,924
Earnings						
1974	$6,113	$1,025	$1,423	$2,627	$5,692	$17,075
1979	6,646	773	1,193	2,899	5,798	15,847
1984	5,858	652	1,398	2,712	6,259	15,256
1989	7,694	1,018	1,697	3,734	6,789	22,629
1992	7,000	350	1,204	3,581	6,018	18,000
Other						
1974	$2,669	$1,568	$2,459	$2,698	$3,835	$5,078
1979	2,125	1,739	1,855	2,435	3,989	3,479
1984	1,956	1,674	1,833	2,347	2,608	3,502
1989	1,989	1,582	1,738	2,675	2,738	3,575
1992	2,264	1,656	1,704	2,640	3,000	4,200

Source: Employee Benefit Research Institute (1994, Appendix table 2.7) tabulations of the March Current Population Surveys (1975, 1980, 1985, 1990, 1993).

Table 1-4

Mean Household Incomes for the Elderly in 1987, by Relative Poverty Level (1992 Dollars)

Income as a % of Poverty[1]	Percent of Group	Total Income	Earnings	Social Security	Employer Pensions	Assets	SSI	Other Income
Married Couple								
0-99%	6%	$5,703	$175	$4,247	$206	$536	$527	$66
100-149%	10%	10,766	625	8,635	467	809	198	89
150-199%	13%	14,934	876	10,915	1,467	1,453	192	35
200-299%	23%	21,116	2,240	11,834	3,813	3,143	32	67
Over 300%	48%	51,241	17,184	11,342	9,524	13,023	9	164
Total	100%	32,797	8,962	10,673	5,694	7,283	90	111
Single Individuals								
0-99%	33%	$5,019	$64	$4,012	$99	$304	$518	$25
100-149%	25%	8,814	206	6,821	556	1,007	185	37
150-199%	13%	12,605	769	7,504	1,839	2,354	48	95
200-299%	14%	17,719	1,458	7,762	3,597	4,787	22	96
Over 300%	16%	38,804	7,398	7,573	6,890	16,661	23	269
Total	100%	13,994	1,532	6,236	1,988	3,926	229	84

[1] The average weighted poverty threshold for one-person and two-person households over the age of 65 was $6,727 and $8,479 in 1987, respectively (in 1992 dollars).

Source: Lewin/ICF (1989) tabulations from the 1988 Current Population Survey.

One problem with using mean income levels to describe the economic status of a group of people is that a few outlier values can have a large effect on the mean. Another statistic describing the income of the "typical" individuals or household for a given population is the median income level. Median incomes typically are lower than mean incomes because the income distribution (especially for the elderly) tends to be positively skewed. EBRI tabulations of median total income, by income quintile, for the elderly (Table 1-3) are lower than mean income estimates (Table 1-2), except for the lowest income quintile. In each of the selected years, the mean earnings income for the lowest quintile was close to zero, and negative for two years. This suggests that individuals with large income losses pulled down the mean.

An important difference between elderly and non-elderly households is household size. Elderly households are typically smaller than non-elderly households. Radner (1992) estimates median household incomes (adjusted for unit size) by age of household using the March 1991 CPS. Radner's estimates (shown in Table 1-5) show median household income rising with age until the head of the household reaches age 45-54, and then rapidly declining when individuals reach their early to mid 60s (when most individuals in the workforce begin to retire).

Comparisons of income between the elderly and non-elderly can also be compounded by in-kind benefits and taxes. A 1984 ICF study uses the March 1981 Consumer Population Survey (CPS) to compare the economic status of the aged to the non-aged including in-kind benefits and taxes. Although the data used in this study are dated, the ICF study is unique in that it shows how the income distribution changes when five different definitions of income are used. These definitions are: 1) pre-tax cash income; 2) post-tax cash income; 3) pre-tax income with employer benefits and pensions and in-kind transfers (i.e., Medicare, Medicaid, food stamps, rent subsidization, etc.); 4) pre-tax income with the annuity value of wealth; and 5) post-tax income including all sources--employer benefits and pensions, in-kind transfers,

and annuity wealth.[7] A comparison of income levels using these different definitions of income is important, because cash income alone is only a partial measure of economic status.

Table 1-5
Median Household Incomes by Age of Unit Head, 1990

Age of unit head	Median Income (1992 Dollars)	Relative to overall median
All ages (Unit heads aged 15+)	$20,582	1.00
Under age 65	21,899	1.06
65 or older	15,868	0.77
20-24	12,067	0.59
25-29	18,880	0.92
30-34	20,584	1.00
35-39	22,376	1.09
40-44	24,491	1.19
45-49	28,237	1.37
50-54	27,891	1.36
55-59	26,712	1.30
60-64	22,035	1.07
65-69	19,865	0.97
70-74	16,736	0.81
75-79	14,466	0.70
80-84	12,345	0.60
85+	10,971	0.53

Source: Radner (1992) tabulations from March 1991 Current Population Survey.

The ICF data indicate that the elderly tend to benefit more from in-kind transfers than the non-aged (see Table 1-6). Moving from the pre-tax cash measure to the post-tax measure including all sources of income, the elderly's median income increases substantially, in both an absolute sense (from $14,800 to $20,300 in 1992 dollars), and as a fraction of the corresponding non-elderly medians (from 47 to 71 percent).

[7] While the CPS collected extensive data on personal and family income, there was no information on the level of asset holdings. For financial assets, the amount of assets required to generate the reported level of asset income is determined, while home equity for homeowners is imputed based on the head's age, sex, education, and marital status. These asset amounts are then converted into an annuity, to determine the size of the (steady) income stream they can generate.

What causes the shift in the differentials between pre-tax and post-tax income of the elderly and non-elderly? First, because the elderly have lower incomes, they fall into lower tax brackets. Second, the elderly receive several tax benefits that the general population is not entitled to. Although the tax codes have changed since the early 1980s (the elderly could previously take a second exemption and Social Security benefits were not taxed), the elderly still receive some tax advantages. In 1994, individuals over age 65 were allowed larger standard deductions than individuals under age 65. Also, not all Social Security income is taxed--anywhere from 0 to 85 percent of income is taxed, depending on the individual's filing status and total income level. Since most of the elderly are not in the work force, they do not pay Social Security taxes.

The economic status of non-elderly households, relative to elderly households, may be overstated since no adjustments are made for family size (see Table 1-6). In this sample, non-elderly households are much larger, averaging 3.4 members to the elderly's 1.5. The ICF study considers two possible methods for adjusting for family size. The first compares families of the same size across the two age groups, while the second attempts to directly adjust for differences in family size using weights developed by Danziger et al. from the 1972-73 Consumer Expenditure Survey (CEX).[5] The precise weights are detailed in the data appendix. In general, weights increase at a declining rate as family size rises (to account for economies of scale in housing and similar areas of consumption), and are lower for the elderly, as the elderly pay lower taxes.

The distribution of pre-tax cash incomes for the single elderly and non-elderly are very similar--the medians are $13,400 and $15,300 respectively (see Table 1-7). Thus, it appears that much of the large disparity in pre-tax cash incomes can be explained by smaller elderly family size. At the same time, adjusted post-tax income from all sources indicates that very few elderly have small adjusted incomes (only 4.8 percent of elderly families have an adjusted income of less than $10,213 dollars), but the median disparity in post-tax income between the

[5] Danziger, S., Van der Gaag, J., Smolensky, E., and Taussig, M., " Implications of the Relative Economic Status of the Elderly for Transfer Policy," Brookings Institution, Dec. 1982, Washington D.C.

elderly and non-elderly increases (from $28,400 - $20,300 = $8,100 to $39,500 - $26,900 = $12,600; see Tables 1-6 and 1-7).

Table 1-6

Income Distribution and Median Incomes of the Aged and Non-Aged Households Under Alternative Income Definitions in 1980

(1992 Dollars)

Family Income[1]	Pre-Tax Cash Income	Pre-Tax with in-Kind Benefits	Pre-Tax with Annuity Wealth	Post-Tax with all Sources
The Aged				
$0-5,106	7.1%	3.9%	4.3%	2.3%
$5,107-10,213	27.4%	25.2%	19.8%	17.4%
$10,214-17,025	22.8%	24.4%	20.6%	22.5%
$17,026-25,538	17.2%	17.9%	20.1%	20.9%
$25,539-34,052	9.3%	10.2%	12.4%	14.0%
$34,053-59,591	11.5%	12.7%	15.8%	17.0%
$59,592+	4.7%	5.6%	6.9%	5.8%
Total	100%	100%	100%	100%
Median[2]	$14,800	$16,600	$19,300	$20,300
The Non-Aged				
$0-5,106	5.9%	4.6%	5.5%	4.7%
$5,107-10,213	7.9%	6.9%	7.7%	7.9%
$10,214-17,025	11.1%	11.0%	10.7%	14.3%
$17,026-25,538	14.8%	14.1%	14.7%	17.8%
$25,539-34,052	14.0%	12.7%	13.5%	15.9%
$34,053-59,591	30.0%	30.6%	30.4%	29.8%
$59,592+	16.5%	20.0%	17.5%	9.7%
Total	100%	100%	100%	100%
Median[2]	$31,800	$34,500	$33,100	$28,400

[1] The row entries (e.g., 0-5,106) have been scaled from their 1980 (e.g., 0-2,999) values, assuming prices have increased approximately 70.3 percent from 1980 to 1992.

[2] This study did not report median income measures. These medians were imputed using the reported income distribution for each measure of income.

Source: ICF Inc. (1984) tabulations from the 1981 Current Population Survey.

Table 1-7

Percent Distribution and Medians of the Incomes of the Aged and Non-Aged Adjusted for Family Size in 1980 (1992 Dollars)

Family Income	One Person Families Post-Tax Income from All Sources		Pre-Tax Cash Income Adjusted for Family Size and Age	
	Aged	Non-Aged	Aged	Non-Aged
$0-5,106	3.9%	12.2%	4.8%	8.9%
$5,107-10,213	32.5%	18.7%		
$10,214-17,025	29.7%	25.2%	19.6%	7.8%
$17,026-25,538	17.7%	22.8%	23.0%	11.1%
$25,539-34,052	7.5%	12.5%	15.3%	11.8%
$34,053-59,591	6.8%	7.8%	22.6%	32.7%
$59,592+	1.9%	1.0%	14.7%	27.7%
Total	100%	100%	100%	100%
Median	$13,400	$15,300	$26,900	$39,500

Source: ICF, Inc.(1984) tabulations from the 1981 Current Population Survey.

The 1984 ICF study also considers these different measures of income for various age groups among the elderly. In particular, the study distinguishes between those age 65 to 74 and those age 75 and over. Those 75 and over have lower pre-tax cash and post-tax incomes than those 65 to 74 in 1980; median pre-tax cash and post-tax income levels are lower--$14,100 and $18,000 versus $17,000 and $21,100, and the percentage of the elderly age 75 and over with pre-tax cash incomes under $10,213 is much higher--44 percent versus 28.2 percent (see Table 1-8). Unfortunately, this type of cross-sectional analysis does not explain why those aged 75 and over have lower incomes. They may have started to consume their assets to maintain their level of consumption as predicted by the life cycle model, they simply may have lower lifetime earnings and incomes or they may have incurred higher acute and long term care costs. The implications of these findings for long term care are important, because so many long term care users are age 75 and over.

Table 1-8

Percent Distribution and Medians of the Incomes of Elderly Persons Age 65 to 74 and 75 and Over in 1980 (1992 Dollars)

Family Income	Pre-Tax Cash Income		Post-Tax Income From All Sources	
	Age 65-74	Age 75+	Age 65-74	Age 75+
$0-5,106	6.0%	8.8%	2.2%	2.5%
$5,107-10,213	22.2%	35.2%	15.1%	21.1%
$10,214-17,025	22.1%	24.0%	21.7%	23.8%
$17,026-25,538	18.4%	15.3%	21.1%	20.5%
$25,539-34,052	11.1%	6.4%	14.8%	12.8%
$34,053-59,591	14.2%	7.4%	19.3%	13.4%
$59,592+	6.0%	2.9%	5.7%	5.7%
Total	100%	100%	100%	100%
Median	$17,000	$14,100	$21,100	$18,000

Source: ICF, Inc.(1984) tabulations from the 1981 Current Population Survey.

Similar to the ICF study, Radner (1992) uses Bureau of the Census (1991) estimates to computed mean and median income levels for the aged and nonaged using various income definitions (see Table 1-9). Non-cash benefits (Medicare plus other government noncash income) and imputed rent (from mortgage-free homes) narrow the ratio of aged incomes to nonaged incomes. Still, under the most generous definition for the aged (i.e., the definition at which the aged mean household income level is closest to the nonaged mean income level) the average income for the aged is about 18 percent lower than the average household income of the nonaged population.

Table 1-9

Mean and Median Incomes for Aged and Nonaged Households, 1990

(1992 Dollars)

Definition of Income	Aged	Nonaged	Ratio of aged to nonaged[1]
Mean Incomes			
1. Cash income before taxes.	$28,342	$43,847	0.646
2. Definition 1 plus capital gains.	29,161	45,233	0.645
3. Definition 2 minus taxes.	25,418	35,483	0.716
4. Definition 3 plus government noncash income excluding Medicare.	25,726	35,960	0.715
5. Definition 4 plus imputed rent.	29,394	38,111	0.771
6. Definition 5 plus employer health insurance supplements	29,800	40,001	0.745
7. Definition 6 plus Medicare	33,027	40,087	0.824
Median Incomes			
1. Cash income before taxes.	$19,389	$32,142	0.603
2. Definition 1 minus taxes plus selected noncash income types.	23,294	29,756	0.783
3. Definition 2 plus imputed rent.	26,396	31,790	0.830

[1] Ratios for the median incomes are the ratio of aged incomes to all incomes. The ratio would be lower if the median income for the aged population was compared to the median income of the nonaged population.

Source: Radner (1992) tabulations from the 1991 Current Population Survey.

2. *Survey Of Income And Program Participation*

The Survey of Income and Program Participation (SIPP) is a panel survey of approximately 21,900 households in 1990-1992. The SIPP universe is the noninstitutionalized resident population in the U.S. where the head of the household is at least 15 years of age. The 1986-87 panels of the SIPP interviewed approximately 11,600 households, while the 1984-85 panels interviewed approximately 18,700 households. (Approximately 3,900 heads of household in the 1984 panel were 65 years or older, and almost 1,600 were aged 75 or older). Each panel of the households participating in the survey was interviewed every four months for a period of about two and a half years. By oversampling individuals with lower incomes and

wealth, the SIPP allows researchers to examine participation in various government assistance programs.

A U.S. Department of Commerce report (Eargle, 1990) provides household income and wealth summary statistics for 1988, by age group, using data from the 1986 and 1987 panels of the SIPP (collected from January 1988 through May 1988). Similar to the CPS estimates presented in the previous section, these income statistics (Table 1-10) show median household income rising with age, peaking about age 45 to 54, and then declining rapidly with retirement.

Table 1-10
Annual Household Income and Net Worth: 1988,
by Age of Head of Household
(1992 Dollars)

Age categories						65 years and over			
	Total	<35	35-44	45-54	55-64	Total	65-69	70-74	75+
All households (thousands)	91,554	25,379	19,916	13,613	13,090	19,556	6,331	5,184	8,041
Median income[1]	$28,221	28,463	35,579	37,059	29,474	17,234	21,305	18,928	13,904
Median net worth	$42,401	7,208	39,354	68,153	94,915	87,134	99,002	97,381	72,926
Excluding home equity	$11,670	3,864	10,665	18,432	31,305	28,292	32,593	33,411	22,319

[1] Income is defined as income from all sources. Income estimates in Eargle (1990) are presented as median monthly income.

Source: U.S. Department of Commerce (Eargle, 1990, Table E) tabulations from the 1988 Survey of Program Participation.

Lewin/ICF (1990) analyzes the sources and levels of pre-tax income of the elderly using the 1984 SIPP. The relative importance of each major source of income varies by an individual's income level (see Table 1-11). In particular, Social Security is the major source of income for low income individuals (comprising 71 percent of total income for these families), while pension, asset and employment income is more important for the higher income groups (comprising 73 percent of their total income) in 1984. The oldest old (age 85 and over), are more likely to be low income (65 versus 35 percent) and less likely to have moderate to high

incomes (11 versus 23 percent) than younger elderly cohorts in 1984 (see Table 1-12). Thus, these SIPP findings confirm the previous CPS findings in sharing that the oldest elderly, that most likely to use long term care, have the lowest incomes. And they also confirm the CPS findings that show that a high percentage of the oldest elderly (65 percent) have incomes below 150 percent of the family line.

Table 1-11

Income Sources for Elderly from the 1984 SIPP

(1992 Dollars)

Family Income Source[1]	Family Income Level[2]			
	Low	Modest	Moderate to High	Total
Percent of Persons	36%	40%	24%	100%
Social Security				
Percent with Income	94%	98%	93%	95%
Median Amount	$7,764	$12,479	$13,669	$10,297
Ave. % of Total Income	71%	47%	23%	51%
Pension				
Percent with Income	28%	66%	68%	52%
Median Amount	$1,858	$5,301	$12,681	$5,543
Ave. % of Total Income	6%	18%	20%	14%
Employment				
Percent with Income	14%	35%	54%	32%
Median Amount	$3,087	$10,295	$26,903	$11,623
Ave. % of Total Income	5%	16%	29%	14%
Assets				
Percent with Income	62%	92%	97%	82%
Median Amount	$692	$2,624	$9,138	$2,487
Ave. % of Total Income	7%	15%	23%	13%
Other				
Ave. % of Total Income	11%	4%	5%	8%
Total Median Income	$10,136	$12,255	$42,636	$22,004

[1] Median amounts are for persons with income from this source--all in 1992 dollars. "Ave. % of Total Income" refers to the source's percentage of family income for all persons. Other income includes SSI, rental income, and business income.

[2] Low income individuals have incomes under 150 percent, modest, 150-299 percent, and moderate to high, over 300 percent of the poverty line.

Source: Lewin/ICF (1990) estimates using the 1984 Survey of Income and Program Participation.

Table 1-12
Distribution of Elderly Families by Age and Income Level for the 1984 SIPP

Age of Family Head[1]	Family Income Level[2]			
	Low	Modest	Moderate to High	Total
65 to 74	35%	43%	23%	100%
75 to 84	51%	33%	16%	100%
85 and Over	65%	24%	11%	100%
All Elderly	42%	38%	20%	100%

[1] Note that the distribution by family income level differs from Table 1-11 because data are based on families, not individuals.

[2] Low income individuals have under 150% of the poverty line, modest, 150 to 299% of the poverty line, and moderate to high, 300% or more of the poverty line. Family income is based on income from all persons living in the family.

Source: Lewin/ICF (1990) estimates from the 1984 Survey of Income and Program Participation.

3. *Survey of Consumer Finances*

The Survey of Consumer Finances (SCF), a longitudinal data set, began with an initial survey of 4,262 families in 1983. The 1986, 1989, and 1992 surveys were telephone re-contacts with households who were interviewed previously as part of the 1983 survey.

The SCF is distinguished from other surveys in that it oversamples wealthier households. Of the 3,906 households contacted in the 1992 survey 2,427 came from a stratified random sampling. The remaining 1,479 households were selected using tax return data which identified them as high-income households. As noted earlier, a relatively small proportion of households have a disproportionately large share of total income and total wealth. Without oversampling of wealthier households, small sample sizes contribute to a large variability in wealth and income estimates.

A 1993 Congressional Budget Office (CBO) study tabulated income and wealth statistics for the 55 to 64 and 65 to 74 year old groups using the 1989 SCF. A summary of CBO's findings is presented in Section III of this chapter.

B. Are These Incomes Adequate? The Replacement Rate Answer

What is an "adequate" income? From a strictly economic perspective, "adequate" is a term devoid of analytic content. The elderly and non-elderly alike presumably derive more enjoyment from ever-higher incomes, at least until some very high level of income is reached. While having no pure economic meaning, income adequacy is still a normative concept possessing intuitive appeal. Loosely defined, an adequate income is one which allows a family to achieve some basic level of well-being; this includes sufficient food, clothing, shelter and other basic necessities, as well as some amount of the "extras" people grow accustomed to in life.

If definitions of income adequacy are so vague, its measurement is bound to be problematic. One yardstick, the poverty line, will be discussed in detail in a subsequent section of this paper. In the previous section, cross-sectional estimates of the income distributions of the elderly and non-elderly give one more set of measurements. If the elderly had incomes roughly comparable to the non-elderly, and/or if only very few of the elderly had quite low incomes, one could conclude that elderly incomes are adequate.

Instead of comparing the incomes of the elderly and the non-elderly, or comparing elderly incomes to an ad hoc measure such as the poverty line, one might consider comparing the incomes of the elderly to their own incomes earlier in life. These ratios are known as replacement rates, because they reflect the ability of the retired to "replace" their pre-retirement incomes. Such a comparison can best be captured using a longitudinal data set, which tracks the incomes of a group of people before and after they become elderly; however, a pooled cross-sectional data set can also be used. The main benefit of using a longitudinal data set is that the same individuals are tracked over time. This allows researchers to analyze changes in wealth and income with respect to changes in other variables (e.g., health, death of

a spouse, retirement, etc.). The main advantages of a pooled cross-sectional data set is that the sample size is generally larger and, since the same individuals are not tracked over time, there is no attrition due to "lost" survey participants. As noted earlier, replacement rates can be calculated only for elderly survivors. It is quite possible that those elderly with low replacement rates could die at a disproportionate rate, introducing an upward bias to any replacement rate estimate.

1. Fox Found Low Replacement Rates

Fox (1982) uses the 1969 to 1979 Longitudinal Retirement History Survey (LRHS) to calculate replacement rates for the "young" elderly.[9] The LRHS followed over 11,000 households whose head was age 58 to 63 in 1969. Households were interviewed every two years during the 10 year period of the study. While the LRHS is an extremely rich source of data, it suffers from two weaknesses: 1) no person in the sample was ever older than 73, and many were under age 65 for much of the sample period; and 2) all the data are over fifteen years old.

All household heads in Fox's sample receive Social Security benefits by December, 1976. Pre-retirement earnings are drawn from the Summary Earnings Record (SER), which updates earnings annually for all persons with Social Security numbers. As Social Security benefits change greatly over this period, Fox calculates benefits using the 1976 rules for the entire period. Two measures of pre-retirement earnings are used: 1) the average of the three highest earnings years in the ten years preceding retirement ($High_3$); and 2) the average of the middle four years of the ten year period before retirement (Mid_4).[10] $High_3$ replacement rates are lower than Mid_4, as $High_3$ earnings are greater than or equal to Mid_4 earnings, but as both rates are similar qualitatively, only Mid_4 results are reported here.

Replacement rates for non-married men and women are higher than those for married men, as married men have higher pre-retirement earnings, and Social Security replaces a

[9] The last wave of the LRHS (1979) was not publicly available when Fox conducted his research.

[10] Earnings refer to the source of earnings generating Social Security Benefits--whether own earnings (Worker Benefits) or spousal earnings (Spousal Benefits).

higher fraction of lower than of higher earnings (see Table 1-13).[11] While these replacement rates at first glance may seem low (medians in the 50 to 60 percent range),[12] it is important to remember that the retired pay a much smaller fraction of their taxes in income than workers, often live rent free in their own homes, cease having work related expenses--transportation, clothing, etc. and usually no longer face the expenses of raising their children.[13]

Table 1-13

Distribution of Total Replacement Rates from the LRHS

(Replacement Rates Using Social Security Income Only Are in Parentheses)

Replacement Rate	Married Men	Unmarried Men	Unmarried Women
0.1 to 19.9%	0% (4%)	0% (2%)	0% (0%)
20.0 to 39.9%	17% (47%)	11% (37%)	3% (23%)
40.0 to 59.9%	52% (36%)	57% (38%)	36% (52%)
60.0 to 79.9%	22% (7%)	24% (13%)	44% (14%)
80.0 to 99.9%	6% (3%)	4% (5%)	10% (4%)
100% and Over	4% (3%)	5% (8%)	8% (7%)
Total	100% (100%)	100% (100%)	100% (100%)
Median	52% (40%)	54% (44%)	64% (48%)

Source: Fox (1982) estimates from the 1969 to 1978 Longitudinal History Survey.

2. *Boskin and Shoven's Replacement Rates Are Higher*

Boskin and Shoven (1987) estimate much higher replacement rates from the LRHS than Fox. Rising elderly incomes during the 1970s, fueled largely by substantial real increases in Social Security benefits, cause elderly replacement rates to rise by 1978, the last year for which the LRHS collected economic data. Boskin and Shoven's analysis differs from Fox's in two principal ways: 1) they use the last (1979) wave of the LRHS; and 2) Boskin and Shoven

[11] All replacement rate measures presented in this paper are fully adjusted for inflation. In other tabulations in the Fox paper, individuals with lower pre-retirement earnings typically have higher replacement rates than individuals with higher pre-retirement incomes.

[12] As Boskin and Shoven (1986) point out, the life cycle hypothesis predicts an ideal replacement rate of less than one. Consumption during working years is less than income, and this excess is saved to increase consumption during retirement. With a replacement rate of one, consumption in retirement will exceed consumption during working years, violating the life-cycle's smooth consumption stream.

[13] However, members of Fox's sample face greater risks of incurring high medical expenses while old than while they were young.

employ a very different methodology (details of these differences are presented in the appendix). Briefly, Shoven and Boskin make three major adjustments to Fox's methodology: 1) they try to net out the costs of raising children before people become elderly; 2) they assume that elderly incomes are more "certain" (i.e., less subject to cyclical variation) than the non-elderly and are thus worth more; and 3) Shoven and Boskin replace Mid_4 and $High_3$ earnings with average lifetime earnings. With all of these adjustments, replacement rates jump from a range of 0.50 to 0.60 to a range of 1.12 to 2.50 (see Table 1-14). Boskin and Shoven's replacement rates are higher for lower income couples (2.03 to 2.50) than for couples with higher incomes (1.12 to 1.23). Replacement rates also tend to rise over time, from 1.16 to 2.03 in 1971 to 1.17 to 2.50 in 1979. Given that two approaches which used the same data can result in such widely different conclusions suggests that readers of the replacement rate literature exercise considerable caution.

Table 1-14

Replacement Rates in the 1970s for Married Elderly Couples

(Annual Indexed Earnings in 1992 Dollars)

Annual Indexed Earnings	Year				
	1971	1973	1975	1977	1979
Under $10,564	2.03	2.13	2.31	2.36	2.50
$10,565 to $17,608	1.53	1.62	1.66	1.69	1.67
$17,609 to $28,173	1.17	1.33	1.25	1.31	1.31
Over $28,173	1.16	1.23	1.12	1.13	1.17

Source: Boskin and Shoven (1987) estimates from the 1969 to 1979 Longitudinal retirement History Survey.

III. The Elderly Are One Of The Wealthiest Age Groups

Economists think that consumption, not income, is the better measure of economic status. This is particularly true for the elderly who can draw upon their savings to replace lost revenue after retirement. A given stock of wealth can sustain a higher constant level of consumption--barring catastrophic healthcare costs--for older rather than younger individuals

because older individuals can dissave at a faster rate over the remainder of their life. Although researchers have found that the income of the elderly, on average, is substantially lower than that of the nonelderly, they have found the assets of the elderly, on average, to be much higher (see Table 1-10 which presents data from SIPP). High wealth holdings by the elderly can thus offset their lower incomes, raising their economic status relative to that of the non-elderly. However, income and assets levels are highly correlated among the elderly (see Tables 1-11 and 1-15). Those elderly who have low levels of income tend to have low levels of wealth, and thus cannot offset their low income levels through dissaving.

A. Survey Of Income And Program Participation

A U.S. Department of Commerce study (Eargle, 1990) summarizes median household net worth in 1988 by age group and income quintile (see Table 1-15; and also Table 1-10). The main findings from this study are that: 1) income and asset levels are highly correlated across age categories; 2) home equity constitutes a substantial portion of total net worth; 3) the percentage of net worth attributed to home equity increases at an increasing rate as income declines; and 4) individuals in the bottom two quintiles have very few assets, excluding home equity. These points reflect that: 1) higher-income households have more discretionary spending with which to accumulate assets, and asset income contributes to total income, and 2) individuals are either unwilling or unable to consume home equity.

These findings (Eargle, 1990) also have implications for the financing of long term care. Eargle estimates that approximately 65 percent of elderly households fall in the bottom two income quintiles and that the median net worth, excluding home equity for the 7.3 million elderly households in the lowest income quintiles is only $4,194. More importantly for long term care financing, the study indicates that 3.8 million of the 8 million households headed by an individual age 75 and over have incomes below $13,368 and median net worth, excluding home equity of $5,306. Thus, if this group were to enter a nursing home, their assets would be sufficient to pay for less than a two-month stay. Consequently, one could conclude that this group is quite vulnerable to the high costs of long term care.

Poterba et al. (1994) report information on the 1984 and 1991 mean and median asset holdings for households using the 1984 and 1990 SIPP panels. Although they only summarize wealth for individuals aged 55 to 64 and 65 to 69, their tabulations provide a detailed account of net worth by asset type. In one of their tabulations, they include the net present value of Social Security and pensions, in addition to financial assets and home equity (Table 1-16). Their estimates suggest that net worth for the 65-69 year old population in 1991 is higher than the net worth of their counterparts in 1984, but that the 55-64 year old group in 1991 has lower net worth than their counterparts in 1984. When including the present value of the Social Security and pension income streams in net worth, it should be remembered that increases in life expectancy will increase net worth.

Table 1-15

Median Household Net Worth, by Age of Head of Household: 1988

by Income Quintile (1992 Dollars)

						Age 65 and over			
	Total	<35	35-44	45-54	55-64	Total	65-69	70-74	75+
Lowest Quintile: $0-$13,368									
Households (thousands)	18,299	4,642	2,270	1,630	2,467	7,290	1,800	1,647	3,842
Median net worth	5,128	773	1,006	3,324	19,622	29,910	28,083	34,251	29,994
Excluding home equity	1,366	531	523	1,064	1,828	4,194	3,623	3,627	5,306
Second Quintile: $13,368-$24,180									
Households (thousands)	18,253	5,460	3,112	1,894	2,407	5,380	1,615	1,534	2,230
Median net worth	23,356	3,025	8,937	20,350	61,245	90,193	87,420	91,741	90,434
Excluding home equity	6,468	2,162	2,781	4,798	15,796	33,406	30,790	31,971	37,777
Third Quintile: $24,180-$36,552									
Households (thousands)	18,378	6,186	4,007	2,325	2,480	3,380	1,356	924	1,100
Median net worth	33,259	7,638	23,729	45,417	100,365	168,183	145,694	169,002	188,607
Excluding home equity	9,983	4,024	5,983	10,771	32,765	67,631	55,778	67,626	92,413
Fourth Quintile: $36,553-$55,260									
Households (thousands)	18,310	5,694	5,025	3,049	2,583	1,959	850	578	530
Median net worth	54,833	18,288	47,419	78,030	113,931	239,046	214,425	258,033	263,664
Excluding home equity	17,049	8,222	13,685	22,307	43,325	119,166	102,372	143,907	144,470
Highest Quintile: $55,261+									
Households (thousands)	18,314	3,397	5,502	4,715	3,152	1,548	710	500	338
Median net worth	132,556	44,850	104,713	155,204	235,992	406,805	357,829	439,632	463,297
Excluding home equity	48,255	19,654	36,487	54,316	108,976	247,617	203,018	291,032	298,933

Source: U.S. Department of Commerce (Eargle, 1990, Table E). Estimates from the 1989 Survey of Income and Program Participation.

Table 1-16

Mean and Median Wealth Holdings: 1984 and 1991

(1992 Dollars)

Holdings	1984		1991	
	Mean	Median	Mean	Median
Household Head Age 65-69	n=1408		n=1525	
Total financial assets	$ 49,800	$ 13,700	$ 54,500	$ 14,400
Personal retirement assets	3,300	0	11,200	0
Other assets	46,500	12,700	43,300	7,600
Home equity	54,300	47,300	67,000	51,500
Equity in other property	36,200	5,300	34,900	6,200
Employer-provided pension	65,400	13,900	64,200	16,500
Social Security wealth	109,400	108,400	102,700	102,200
Net worth	**313,800**	**255,500**	**321,700**	**269,300**
Net worth (excluding pension and Social Security wealth)	**139,000**	**83,400**	**154,800**	**99,500**
Household Head Age 55-64	n=2992		n=2799	
Total financial assets	37,600	9,000	43,300	8,500
Personal retirement assets	5,000	0	13,300	0
Other assets	32,600	5,200	30,000	3,100
Home equity	60,900	50,000	59,500	37,100
Equity in other property	51,000	7,200	45,600	8,400
Net worth (excluding pension and Social Security wealth)	**146,400**	**88,900**	**144,700**	**77,200**

Source: Poterba et al. (1994, Table 1). Tabulations from the Survey of Income and Program Participation, 1984 Panel Wave 4 and 1990 Panel Wave 4.

B. Survey of Consumer Finances

As noted earlier, the Survey of Consumer Finances (SCF) distinguishes itself from other surveys in that it oversamples wealthier households. This survey collects detailed information on the composition of household balance sheets, as well as information on employment histories and pension rights. The Congressional Budget Office (1993) tabulated wealth statistics for married and unmarried heads of household by income quintile, using the 1989 SCF (see Table 1-17). CBO's wealth estimates include the household's financial assets, home and automobile equity, and the value that can be borrowed against employer-provided

pension accounts, less other non-housing liabilities such as credit card debt. The SCF reports neither the value of future Social Security benefits nor the illiquid portion of pension accounts.

The median wealth of households age 55 to 64 in 1989 from the SCF ($110,000) is much higher than the 1991 estimate from the SIPP ($77,200) (see Table 1-16). The 1992 Green Book (U.S. House of Representatives, 1992) reports that median (mean) net worth estimates from the 1989 SCF were $77,600 ($278,300) for households with family heads age 65 to 74, and $66,100 ($194,500) for households with family heads age 75 and over. These median networth estimates are much larger than estimates obtained from SIPP data (see Table 1-15).

Table 1-17

Wealth-to-Income Ratios and Wealth Within Income Quintiles for Older Households (Age 55 to 74) in 1989

(1992 Dollars)

	Median Ratio of Wealth to Income		Median Wealth	
	Age 55 to 64	Age 65 to 75	Age 55 to 64	Age 65 to 74
All Older Households				
Lowest	0.55	1.84	$9,200	$11,800
Second	3.70	5.23	56,600	57,700
Third	3.67	6.36	111,100	109,400
Fourth	2.88	4.15	123,700	122,500
Highest	3.62	6.00	374,700	377,000
Median	**3.07**	**4.83**	**110,000**	**92,200**
Unmarried Head of Household				
Lowest	0	0.94	$0	$4,200
Second	2.58	2.60	21,700	23,600
Third	2.48	5.92	52,200	68,600
Fourth	3.92	5.75	110,000	90,100
Highest	2.92	7.19	205,900	258,400
Median	**2.58**	**3.99**	**48,800**	**57,500**
Married Head of Household				
Lowest	3.90	3.95	$45,100	$50,300
Second	3.83	6.36	110,500	99,600
Third	3.18	2.89	131,500	76,700
Fourth	2.76	4.67	184,300	179,000
Highest	4.86	6.83	480,900	555,500
Median	**3.51**	**5.23**	**135,200**	**147,300**

Source: CBO (1993, Table 7) tabulations using the 1989 Survey of Consumer Finances.

C. New Beneficiary Survey

The New Beneficiary Survey was first conducted in 1982 using a sample drawn from the Social Security Administration's master Beneficiary Record. A follow-up that was conducted in 1992 interviewed approximately 12,000 of the 18,600 households surveyed in the 1982 Panel. It is important to remember that this group is younger (under age 71--and

usually under age 66), and all of its members are Social Security beneficiaries. Both criteria are generally associated with higher asset levels relative to the entire elderly population.

Sherman (1985) tabulates wealth statistics for four Social Security beneficiary groups–married men and their wives, married wives and their husbands, single men, and single women.[14] Married men and women have higher net worth than single men and women in 1982–$131,800 versus $48,100 to $49,400 in 1992 dollars (see Table 1-18). Single women had higher median net worth including home equity ($49,400) than single men ($48,100), possibly because they are more likely to have been previously married and to retain possession of their family home.

Table 1-18
Median Net Worth and Financial Assets from the 1982 NBS:
Persons Aged 65 and Over (1992 Dollars)

Category	Married Men and Wives	Married Women and Husbands	Single Men	Single Women
Financial Assets	$41,200	$31,200	$19,800	$15,100
Net Worth–no Home Equity	$52,400	$16,600	$16,000	$12,900
Net Worth–with Home Equity	$131,800	$107,200	$48,100	$49,400

Source: Sherman (1985) tabulations from the 1982 New Beneficiary Survey.

D. Longitudinal Retirement History Survey

Friedman and Sjogren (1981) determine the income and net worth for individuals in 1969 and 1975 from the LRHS based on retirement status in each year. To be included in their sample, an individual cannot be a lodger or living on a farm, and must remain in the

[14] Non-mortgage debt is not included in net worth measures, although this debt is quite low for elderly people. The 1983 Survey of Consumer Finances (SCF) finds median non-mortgage debt to be less than $1,000 for households whose head is aged 65 to 74.

LRHS for the 1969, 1971, 1973 and 1975 interviews. Friedman and Sjogren measure net worth from the LRHS as the sum of home equity, liquid, and illiquid assets minus personal debts (which are substantially underreported); cash on hand and consumer durables are not included (see Table 1-19). Income fails to change from 1968 to 1974 for married men, but grows for both unmarried groups during this period. This is largely due to the rise in Social Security benefits over the period, which grow more rapidly for those individuals with lower incomes; a disproportionate number of the low income elderly are single. While mean net worth is declining for all groups over this period (mildly supporting the life cycle hypothesis), median net worth rises for unmarried individuals, in contrast to the decline married men experience.

Table 1-19
Income and Net Worth of the Elderly
in 1968 and 1974 from the LRHS (1992 Dollars)

Marital Status, 1975	Median Income		Median Net Worth		Mean Net Worth	
	1968	1974	1968	1974	1968	1974
Married Men	$16,950	16,583	53,217	42,013	126,270	100,133
Unmarried Men	5,950	8,031	5,080	6,870	39,627	39,276
Unmarried Women	5,212	6,680	2,016	3,298	55,012	42,985

Source: Friedman and Sjogren (1981) tabulations from the 1968 and 1974 Longitudinal Retirement History Survey.

E. The Asset and Health Dynamics of the Oldest Old (AHEAD)

Smith (1995) documents large disparities in the distribution of *household wealth* (net housing wealth plus net real assets plus net financial assets) and financial assets. Smith uses the 1994 Asset and Health Dynamics of the Oldest Old (AHEAD), a survey of households with at least one member age 70 and older. AHEAD includes a sample of 6,052 households with 8,223 individuals age 70 and over, collecting information on income, wealth, physical, emotional, and cognitive capacity, and intergenerational transfers. AHEAD also oversamples blacks and Hispanics.

Smith estimates that the 95th percentile of household wealth for white individuals age 70 and above in this sample, $655,000, is more than seven times the median level for whites of that age, $90,000. For blacks of that age, the 95th percentile of household wealth, $182,000, is more than ten times the median level of $17,000, and for Hispanics of that age, the 95th percentile of household wealth, $226,000, is more than 15 times the median level of $14,400. In addition, median financial assets for whites age 70 and over are $10,500, much less than the 95th percentile ($300,000) or even mean levels ($65,100) for whites of that age. Median financial assets for blacks and Hispanics in the AHEAD sample are $0, and the 95th percentile ($32,300 for blacks, $45,000 for Hispanics) and mean levels ($6,000 for blacks and $8,400 for Hispanics) are much lower than the corresponding levels for whites. Using income data from AHEAD, Smith determines that the differences among whites, blacks, and Hispanics age 70 and over can largely be attributed to the lower lifetime earnings of blacks and Hispanics relative to whites.

IV. SUMMARY

This chapter focuses on group statistics (medians and means) for the elderly's income and assets. While elderly pre-tax incomes are much lower than those of the non-elderly, these differences narrow greatly once the effects of taxes, government transfer programs, and the value of elderly owner-occupied housing are considered. Since the elderly in general have lower living expenses than the non-elderly, as the expenses of raising children and going to work have ceased, the elderly's relative position improves even more.

If the elderly's incomes are compared to their own earnings levels prior to retirement, the incomes of the elderly appear to be sufficient to maintain pre-retirement standards of living. Once again, this is especially true if pre-retirement earnings are adjusted to reflect the costs of raising children. Finally, as Boskin and Shoven (1987) point out a replacement rate of one or more may not be ideal, if individuals follow the life cycle model and save while young to supplement consumption during retirement.

In addition to income, an analysis of the current economic status of the elderly is not complete without a discussion of their assets. The elderly have higher than average holdings of wealth, and only people aged 55 to 64 have higher net worth (Radner, 1989). Since the elderly are closer to the end of their lives than the non-elderly, the same level of assets will support a larger annual level of consumption, further improving the relative economic status of the elderly.

Finally, it is apparent that the those age 75 or older have lower incomes than those between the ages of 65 and 74. This has significant implications for long term care policies because this group is the most likely to use long term care services. Research also indicated that not only does this group have low income but a large proportion of the group also has low levels of financial (non-home equity) assets.

CHAPTER 2:
THE PREVALENCE OF POVERTY AND THE RISK OF CATASTROPHIC UNFUNDED MEDICAL EXPENSES INCURRED BY THE ELDERLY

Problems of elderly poverty persist in the 1980s and 1990s, and fall heavily on certain groups, particularly elderly widows. Women who become widowed often find that their economic circumstances deteriorate rapidly after their husband's death. Even the elderly who are not poor face the risk of incurring catastrophic LTC expenses because they do not qualify for Medicaid funding of their LTC expenses until they have spent their assets and income. Unfortunately, the options for pre-funding these catastrophic medical expenses have not been purchased by many elderly.

Defining poverty is not easy. One definition views being poor in relative terms--a person (or family) is "in poverty" if his or her (their) income is at the bottom of the income distribution (perhaps if income is below the 20th percentile). This measure suffers from clear flaws. If income is quite evenly distributed, then the "poor" could have incomes which are not much smaller than the non-poor; while if the income distribution is highly skewed, many people above the poverty line could have incomes which do not cover basic needs. In addition, comparisons across time are meaningless unless the distribution of income remains constant; if incomes are more (or less) evenly distributed in different time periods, or if income levels are rising (or falling), then being poor has different meanings in different periods.

The more common definition of poverty considers an individual's (or family's) ability to afford some basic market basket of goods. The "poverty line" in the U.S. is based on the Department of Agriculture's 1961 Economy Food Plan and 1955 Survey of Food Consumption, which define the "minimum" consumption requirements of families with respect to family size and the age of the head of household. Larger households are assumed to have economies of scale in consumption (particularly in shelter and durable goods), and households whose head

is aged 65 and over are assumed to require lower incomes (by about 8 percent) to achieve the same level of welfare.[15] These minimum income levels are updated annually based on changes in the Consumer Price Index (CPI). The ad hoc nature of this measure, the weights used to adjust for household size and age, changes that have taken place over time (e.g., food prices have fallen in real terms and food's share of household income has declined), and criticisms about the CPI leave this poverty definition open to active criticism. Still, the poverty line provides a measuring stick to compare the relative economic circumstances of different groups over time.

I. POVERTY IS PERSISTENT AMONG THE ELDERLY

A. The Elderly Do Not Exit Poverty Easily

The Bureau of the Census (Shea, 1995) estimates that in 1991 approximately 9.2 percent of the elderly (2,783,000 individuals) were poor in any given month. They estimate that approximately 1.7 percent of the elderly (428,000) with income above the poverty level in 1990 entered poverty in 1991, while 14.2 percent of the elderly (316,000) who were poor in 1990 exited poverty in 1991. The respective entry and exit rates for the non-elderly population (aged 18 to 64) during this time period were 2.6 and 24.5 percent.

Coe (1988) uses the Panel Study of Income Dynamics (PSID) from 1970 to 1983 to examine the rates of exit out of poverty and duration of poverty for the elderly. Coe uses a sample of 1,099 elderly persons (who experienced 410 distinct poverty spells in their elderly years) to estimate the percentage of elderly who exit poverty (exit rates) in the year following a poverty spell of a particular length (see Table 2-1). For example, Coe estimates that 21.5 percent of the elderly whose spell of poverty lasted at least three years manage to leave this state by the fourth year.[16] The spell duration's are the percentage of all poverty stays of a given length; thus, 13.3 percent of elderly spells of poverty last two years.[17]

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[15] Older households face lower taxes, have fewer work related expenses, and often live rent free in owner occupied housing--this is even true for the poor elderly.

[16] No exit rates from poverty as a result of death were estimated. Coe notes that "this tends to bias exit probabilities downward, thus overstating the length of poverty spells." He also notes that the results

Table 2-1

Poverty Exit Rates and Spell Duration's from the PSID: 1970 to 1983

Length of Spell	Individuals 65+ [1]	Individuals Under Age 65 [2]
Exit Rates (probability of exit in year that follows)		
1 Year	42.3%	44.5%
2 Years	23.1%	28.5%
3 Years	21.5%	24.6%
4 Years	6.3%	20.8%
5 Years	0.8%	19.7%
6 Years	3.1%	14.5%
7 or More Years	6.6%	10.2%
Spell Duration's		
1-2 Year	42.3%	44.5%
2-3 Years	13.3%	15.8%
3-4 Years	9.5%	9.8%
4-9 Years	8.8%	17.9%
10 or More Years	26.1%	12.0%
15 or More Years	20.5%	0.0%
Average	5.3 Years	4.2 Years

Source: [1] Coe (1988) estimates from the 1970 to 1983 Panel Study of Income Dynamics.
[2] Taken from Bane and Ellwood (1986).

Approximately two-thirds of all poverty spell duration's for the elderly are less than three years. Coe's estimates show that after the third year, exit rates for the elderly drop sharply. Younger individuals, though, continue to have substantial exit rates past the third year (10 to 21 percent). This finding is directly carried over into steady state duration predictions. The elderly have much greater chances of having very long spells of ten or more years in poverty than the non-aged (26 vs. 12 percent). Coe also found that exit rates for white and black individuals are about the same; black individuals, however, are more likely to enter poverty. Elderly women have significantly lower exit rates and longer duration's than elderly men.

should be interpreted as the distribution of spells given that the elderly lived long enough to complete the expected spell.

[17] Coe notes that only those poverty spells which occur after an individual's 65th birthday are considered. Thus, if an individual was in poverty immediately prior to turning 65, that portion of the spell was not counted. Also, if an individual experienced multiple spells of poverty, each spell is included in the exit rate estimates.

Coe (1988) and Shea (1995) thus present two interesting facts: (1) the exit rates from poverty of the elderly are lower than those of the non-elderly; and (2) despite this, elderly exist rates from poverty are still significant. In some respects, it is easier to account for the lower exit rates from poverty of the elderly. Few elderly will exit poverty through marriage or through securing employment at good wages, while many of the non-elderly in poverty leave poverty via these routes. Why such significant fractions of elderly living in poverty manage to escape is harder to explain. The results of Coe (1988), however, are consistent with the following explanation. The higher rates of exit from shorts spells of poverty than from long spells found by Coe suggest that many elderly spells in poverty are due to temporary, adverse changes in economic circumstances, such as sharp, unexpected declines in income. Those individuals experiencing this sort of poverty spell may be able to exit that spell because their incomes recover or because they become eligible for means tested public programs.

B. Holden And Smeeding: Financial Uncertainty Among the Elderly

While most of the elderly are not currently in desperate economic circumstances, in addition to the approximately 10 percent of all elderly individuals with incomes below the poverty line, one fourth of elderly married couples and over one third of the single elderly have incomes between 100 percent and 200 percent of the poverty line. Holden and Smeeding (1990) use the 1984 SIPP to determine the number of the elderly whose economic position is "insecure" in 1984. The authors consider an individual to have insecure income if he or she has two of the following risks (the very insecure had more than two of these risks): 1) Medicare is the sole source of acute care coverage; 2) the person cannot afford to pay for a two year stay in a nursing home out of personal resources; 3) the person is not eligible for Supplemental Security Income (SSI) after non-Social Security income ceased; 4) housing costs are a high fraction of income[18]; and 5) the person has a high cost of living due to the presence of one or more physical disabilities. Lower-middle-class individuals (100 to 199 percent of poverty) are most at risk, as they have fewer resources than middle and upper class

[18] This study defines elderly housing costs to be high if: 1) the family pays rent for an unsubsidized dwelling; or 2) the family owns their home, but pays over 33 percent of their income in housing costs and has less than $48,700 equity in their home (in 1992 dollars).

individuals, and often fail to qualify for social supports, unlike the poor (see Table 2-2). Income insecurity was a problem for over half of the lower middle class elderly in 1984.

Table 2-2

Percentage of Elderly with Insecure Incomes: 1984 SIPP

	Poor (under 100% of Poverty Line)	Lower Middle Class (100-199% of Poverty Line)	Middle to Upper Class (Over 200% of Poverty Line)
Insecure	42.7%	60.8%	21.5%
Very Insecure	23.4%	27.6%	5.7%

Source: Holden and Smeeding (1990).

II. ELDERLY WIDOWS ARE AT HIGHER RISK OF BEING IN POVERTY

A disproportionate number of elderly widows were poor before they became widows (Holden et al., 1986). However, elderly widows are also at high risk of entering and remaining in poverty after their husband's death. Zick (1986) analyzes 1969-1977 data from the Panel Study of Income Dynamics (PSID) to compare the experience of widows and widowers to a matched sample of the continuously married. Although Zick's study is greatly limited by its sample design, which potentially biases the results, the findings of this research are still interesting.[19] Widows experience a statistically significant decline in their income following the death of their husband (approximately 45 percent); the drop for widowers is much smaller (approximately 20 percent, and this drop is only weakly statistically significant). Widows and widowers are both more likely to enter poverty than the continuously married, and a downward trend in the economic status of widows and widowers continues for up to five years after the death of a spouse.

[19] In addition to the limits of any matching study, this work is also limited by its sample design--households have to be non-institutional residents, lose a spouse from 1969-1977, and have a surviving member who remained a household head. The surviving spouse also must be poor during the year of their spouse's death, and could not remarry for five years. Each of these conditions potentially biases the results, although sample weights are used to attempt to correct these biases. For example, institutional residents are often poor and widowed. Spouses who survive their partners' death tend to be better off financially than widows and widowers who quickly follow their spouse in death. Some surviving spouses, particularly women, might escape poverty by joining another household (through remarriage, or moving in with children and other relatives).

A. Grad: Widows Have Lower Incomes And Assets Than Other Elderly

Grad (1989) uses the 1984 SIPP to compare the income and assets of five Social Security beneficiary types--retired workers, disabled workers, aged wives, aged widows, and minor children. The focus here is on Grad's results for retired workers, aged wives and aged widows. Poverty line adjustments are used to correct for family size (e.g., because single person households require less income to sustain the same standard of living).

Grad finds that the economic status of retired workers and aged wives is quite similar, while aged widows fare much worse. Rates of poverty for retired workers (9 percent) and aged wives (7 percent) are much smaller than those for widows (26 percent).[20] Only 13 percent of retired workers and 12 percent of aged workers are poor in any month over a 12 month period; this is in sharp contrast to the 32 percent of aged widows who are poor in at least one month. Median net worth of retired workers is over $77,300, and median financial assets are roughly $13,400 (in 1992 dollars). The ratio of the medians for aged wives to these figures are 104 and 102 percent respectively; this plummets to 68 percent and 41 percent for aged widows.

B. Hurd And Wise: Poverty Rates Are High For All Widows, Even Those Who Are Not Poor Prior To Their Husbands' Deaths

Hurd and Wise (1987) use the LRHS to construct several different wealth and income measures from 1971 to 1975 to determine the rates of entry into and exit out of poverty for three elderly groups--married couples, single individuals, and widows.[21] To use measures more comparable with other studies, their income definition excludes measures of housing services (i.e., the value of living in a mortgage-free residence and not having to pay rent),

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[20] The overall poverty rate in SIPP is lower than that of the 1984 Consumer Population Survey (CPS), 11 percent as opposed to 14.4 percent. Likewise, the 1990 poverty rate as measured by the CPS was 13.5 percent, compared to the 10.3 percent estimate based on SIPP. The CPS asks for household income from the previous year, while SIPP collects data from the previous month. It is believed that the shorter recall in SIPP provides more accurate measures of transfer income than the CPS; paradoxically, wage and salary estimates are lower with SIPP data than with CPS data. M. Shea (1995) suggests that persons tend to report net rather than gross wage and salary income in the SIPP.

[21] In the LRHS, the heads of household are 58 to 63 years old in 1969.

Medicare and Medicaid income, car services (i.e., the value of owning a vehicle free of debt), medical expenses, and other unsecured loans. Hurd and Wise find that poverty is not a permanent state for the elderly, reinforcing the work of Holden et al. (See Table 2-3). Perhaps what is most interesting is the huge impact widowhood has on rates of poverty. For all widows, poverty rates increase from nine percent in 1973 to 42 percent in 1975 directly after the death of a spouse; for widows from non-poor couples, the rate still jumps from zero percent in 1973 to 37 percent in 1975.

Table 2-3

Transitions in Poverty Status, by Marital Status Transition: 1973-1975

Year	Couple to Couple	Couple to Widow	Single to Single	Widow to Widow
Total Sample				
1971	8%	8%	30%	28%
1973	8%	9%	29%	33%
1975	7%	42%	29%	24%
Poor in 1973				
1971	50%	50%	72%	48%
1973	100%	100%	100%	100%
1975	51%	85%	78%	50%
Not Poor in 1973				
1971	4%	4%	12%	19%
1973	0%	0%	0%	0%
1975	4%	37%	9%	11%

Source: Hurd and Wise (1987) tabulations from the Longitudinal Retirement History Survey.

What causes these high poverty rates for elderly widows? Hurd and Wise offer two principal explanations. First, as poor people have a higher probability of premature death than do wealthier people the probability that one spouse will die prematurely is higher for poor families. Many of these poor couples appear to be poor even before they must pay the frequently high medical expenses incurred by the husband immediately before death. Hurd and Wise find lower levels of wealth up to eight years before the husband's death. Wealth is also lower for couples where the husband's self-assessed level of health is lower. The previous income and asset base may be smaller for eventually widowed couples, and Hurd

and Wise point to their lower Social Security wealth (compared to surviving couples) as evidence.

Hurd and Wise's second reason for widow poverty is quite simple; the wealth and income loss sustained by the widow at the death of a husband is substantial. Annuity and pension benefits typically do not have survivor clauses,[22] and die with the husband, while Social Security benefits decline significantly as well. In addition, Hurd and Wise estimate that bequeathable wealth declines 32 percent for all widows at their husbands' death, while poor widows lose an even larger share--36.6 percent. The huge increase in poverty at widowhood thus comes as no surprise.

This evidence may suggest another explanation. Eventually-widowed couples not only have lower levels of wealth due to smaller past incomes and higher medical expenses; they also might have higher rates of time discount, due to their expectations of shorter lives for husbands (and perhaps wives). These couples may place much lower values on future consumption than couples which survive from 1969 to 1979 (and beyond). Eventually-widowed couples might spend more while the husband is alive not only for reasons of equity (each spouse is entitled to a fair share of couple's resources), but also if consumption by husband and wife is complementary.[23]

C. Hurd: Raising Social Security Benefits Will Lower Poverty Rates Of Elderly Widows The Most

One large group especially vulnerable to adverse economic events are widows. Using, SIPP, Masumura and Ryscavage (1994) estimate that there were 10.4 million widows in 1991 among the 89.0 million women age 18 and above whose marital status did not change between 1990 and 1991. Thus, widows represented 11.7 percent of this group.[24]

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[22] Since 1974, ERISA has mandated that private pensions have a survivor option. Thus, survivor clauses will continue to become more common among those elderly with pensions.

[23] By complementary, we mean that couples may enjoy the consumption of goods more when both members of the couple are still alive.

[24] The authors also estimated that an additional 3.1 million women age 18 and above changed their marital status between 1990 and 1991. Of these 3.1 million, 1.4 million were married and living with their

Hurd (1987b) simulates the future economic status of widows.[25] Hurd notes that measures of poverty for the elderly are flawed because: 1) they are based on income, not consumption; and 2) they do not include the contributions of in-kind benefits (such as Medicare and Medicaid). Both of these points were discussed at greater length in Chapter 1. It is appropriate to emphasize here that while consumption is a better measure of economic welfare than income, including a valuation for Medicaid and Medicare benefits in a poverty measures is problematic, unless similar valuations for Medicaid and private health insurance benefits are made for the non-elderly. Because Hurd measures the value of the Medicaid and Medicare programs to the elderly as the average level of benefits that all elderly receive, nursing home payments for institutionalized persons will artificially inflate this measure for non-institutional individuals (who form the LRHS). Thus, only those measures which do not include Medicare/Medicaid are reported here.

Unlike many similar estimates, Hurd predicts that the elderly will consume their wealth quite rapidly. As detailed in Appendix A, Hurd estimates two different wealth paths for widows; in one, 1979 widows exhaust all of their wealth by 1989; in a slower path, wealth is exhausted by 1997. The latter path implies higher initial (34 versus 21 percent) and lower final (51 versus 60 percent) poverty rates for the 1979 to 1999 period than the former path. Poverty rates for all widows in any given year from 1979 to 1999 are lower (21 to 39 percent versus 21 to 60 percent), as many widows are widowed after 1979, and have higher incomes and wealth in the period prior to widowhood.

Hurd also simulates the effects of future economic changes on widows' poverty. He finds that neither increasing each cohort's wealth or pension benefits (with more generous surviving spouse provisions) nor lowering future mortality rates have much effect on poverty rates. Only increasing Social Security benefits sharply reduces poverty rates of elderly

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spouse in 1990 but had changed to the "other" category (e.g., widowed, divorced, separated, or never married) group by 1991. From their tabulations, it is impossible to tell how many adult women became widowed between 1990 and 1991.

[25] Details of the methodology employed by Hurd are contained in Appendix A.

widows; however, such a policy choice is an unlikely prospect given current economic and political conditions.

III. RICH OR POOR, THE ELDERLY'S RISK OF CATASTROPHIC MEDICAL EXPENSES ARE HIGH

A. The Elderly Have Much Higher Than Average Medical Expenses

For elderly in strained and comfortable economic circumstances alike, the risks of facing large and unfunded medical expenses are quite high. Predictably, the elderly suffer from more medical problems than the non-elderly, and thus use many more medical services. While the elderly often are insured through the Medicare program and have purchased private insurance (Medigap policies) of have insurance provided by a former employer, many of their medical expenses are still not covered by these sources.

Waldo et al. (1989) estimate that while the elderly are only 12 percent of the population in 1987, they account for 36 percent of medical expenditures. Schultz (1988) estimates that in 1986, out-of-pocket health expenditures for the elderly averaged $1,850, or 16 percent of elderly income. Rubin and Koelln (1993) estimate that between 1986-88, out of pocket health expenditures for the elderly averaged 13.6 percent of total expenditures for lower-income households (i.e., households with incomes below the median), and 7.7 percent for higher-income elderly households. Their estimates of health expenditures as a percent of total expenditures were 4.8 percent and 3.6 percent for the non-elderly lower-income and higher-income households, respectively. Although the elderly are usually covered by Medicare, only part of their acute care medical expenses are covered, leaving the elderly liable for funding the rest of these expenses. "Medigap" insurance, which supplements Medicare, is an important topic in its own right (see for example Wilcox-Gok and Rubin, 1994); however, this section will focus on the other major source of elderly medical expenses--long-term care--particularly nursing home care.

B. Lifetime Risks Of Nursing Home Stay and Expected Stay Duration

Estimates of the lifetime risks of nursing home entry range from 25 to 63 percent (Cohen, Tell, and Wallack, 1986), with most estimates clustering in the range of 40 percent.[26] Women face higher risks than men, as they have longer life expectancies when elderly, and have a greater chance of becoming widowed. Not surprisingly, estimates from the Brookings/ICF Long-Term Care Financing Model (LTCFM) find that the lifetime risk of nursing home entry also increases with age and disability.

The distribution of nursing home stays is relatively bimodal. About a third to a half of nursing home stays are less than 90 days, while a sixth to a third of stays are two years or longer. The length of stay distribution is relatively constant across ages, but single individuals are much more likely to have longer stays–possibly because single individuals do not have a spouse to return to in the community (see Table 2-4).

Table 2-4

Length of Nursing Home Stay in Days

	Age					
	65 to 74		75 to 84		85 and Over	
Length of Stay in Days	Married	Single	Married	Single	Married	Single
0-89	49%	40%	52%	36%	48%	34%
90-364	25%	19%	19%	22%	19%	23%
365-729	8%	9%	10%	11%	10%	13%
730+	17%	32%	20%	32%	22%	29%
Total	100%	100%	100%	100%	100%	100%

Source: Brookings/ICF Long-Term Care Financing Model, 1990. Estimates from this model are based on data from the 1982-84 National Long Term Care Survey (NLTCS)>

[26] Estimates from the Brookings/ICF Long-Term Care Financing Model (LTCFM) for the lifetime risk of nursing home entry for the elderly are about 50 percent as well. Kemper and Murtaugh (1991) estimated that the lifetime risk of nursing home entry for someone who turned at 65 in 1990 at 43 percent.

These stays are very expensive. The LTCFM uses a per diem charge for private payers of $94.03 in 1992, which translates into a yearly cost of about $40,000 (in 1995 dollars). Burwell (1993) states that in some metropolitan areas--such as New York City--private nursing homes average as high as $75,000 per year . The LTCFM predicts that for the elderly in 1990 (those age 65 and above), lifetime nursing home expenditures will average over $21,800 (in 1994 dollars); and for those individuals who enter nursing homes, lifetime nursing home expenditures will average more than $98,000 (in 1994 dollars).

C. Waldo Et. Al. : Out-of-Pocket Expenses For Nursing Home Care Are Very High

Waldo et al. (1989) determine aggregate medical expenditures for different age groups in 1987. Nursing home expenditures comprise a large fraction of total elderly medical expenditures--8 to 40 percent--and private expenditures--7 to 60 percent (see Table 2-5). Total medical expenses, total private expenses, and the percent of expenses for nursing home care increase with age.

Table 2-5

Per Capita Medical Expenses of the Elderly in 1987

(1992 Dollars)

Source	65 to 69	70 to 74	75 to 79	80 to 84	85+
Non-Nursing Home Expenses					
Total	$4,400	$5,030	$5,747	$6,316	$6,718
Private	$1,649	$1,678	$1,709	$1,737	$1,778
Private Fraction of Total Expenses	37.5%	33.4%	29.7%	27.5%	26.5%
Nursing Home Expenses					
Total	$980	$432	$961	$1,922	$4,481
Private	$113	$246	$552	$1,113	$2,627
Private Fraction of Total Expenses	57.0%	56.9%	57.5%	57.8%	58.6%

Source: Waldo et al. (1989).

The reasons for the large private share (57 to 59 percent) of nursing home expenses are clear. Medicare only pays for short (100 days or less) nursing home stays in skilled

nursing facilities (SNFs) for medically necessary care following an acute care hospital stay, with heavy copayments starting after the 20th day. The other major source of public assistance, Medicaid, requires individuals to exhaust most of their assets other than a home (asset spend-down) and their income (income spend-down) before qualifying for benefits. Even after qualifying for Medicaid financing, nursing home patients must continue to contribute nearly all of their remaining income to the cost of their care. Typically, single individuals can keep $2,000 in assets and $30 a month in income; the spouse of a patient can keep the greater of $14,000 or half the couple's assets other than a home up to a maximum of $74,000, and all income up to approximately $890 in 1994.

D. Adams Et. Al. : Medicaid Spend-down Rates Are High

Adams, Meiners, and Burwell (1990) survey the various studies on Medicaid spend-down (see Table 2-6). Most investigations concern asset spend-down, or the exhaustion of assets before qualifying for Medicaid benefits, rather than income spend-down, or the use of all current patient income (minus a small stipend) before Medicaid starts payment.[27] Estimates are based on both state and national samples. While the estimates of spend-down are much lower than is commonly assumed, large fractions of the elderly are still at risk.[28]

Coming to any definitive answers on the process of asset spend-down is difficult. Data on payment generally list only the source of payment at the start and end of a nursing home stay, or current payment source, if applicable, so the timing of spend-down is unknown. Information on previous stays, stays in other nursing homes, and stays interrupted by hospitalization is often missing, complicating the analysis. In addition, different studies use resident, discharge, and "all-user" (for a given period) samples. Resident files tend to over-represent long stayers and overestimate spend-down, while discharge files have too many

[27] There is anecdotal evidence that elderly individuals and their families accelerate spend-down using so-called "estate planning" techniques. That is, the potential spend-down candidate and his or her family engage in activities that shield the candidate's assets and incomes from being included from means tests.

[28] The percentage of patients on Medicaid at nursing home admission (a Lewin/ICF estimate places this rate at 25 percent) is much higher, as is the number of current nursing home patients on Medicaid, than these spend-down percentages.

short stayers and thus underestimate spend-down. Finally, both resident and all-user files suffer from right censoring problems; that is, stays may continue past the survey date and could result in future asset spend-down.

Table 2-6
Medicaid Asset Spend-down:
Range of Empirical Estimates

Measurement Type	National Estimates	State Estimates
SP1	11%	8 to 44%
SP2	14%	17 to 39%
SP3	7 to 16 %	12 to 19%

Definitions: "SP1" is the ratio of spend-down patients to individuals who are private pay at the start of their stay; "SP2" is the ratio of spend-down patients to all current (or final) Medicaid payers; and "SP3" is the fraction of current (or final) patients who have spent down.

Source: Adams et al. (1990).

E. How Many Elderly Could Afford A Nursing Home Stay?

Instead of looking at rates of Medicaid spend-down for the elderly directly, one may measure the risks of becoming a Medicaid recipient in a nursing home by determining the fraction of the aged who can pay for a long stay out of private resources at any point in time (see Table 2-7). The exact definitions used in the Lewin/ICF and The Urban Institute (1991) study are detailed in Appendix A. In general, this study assumes that more of the resources of single elderly people can be devoted to nursing home expenses, as there is no spouse remaining in the community to support.

Four definitions of resources used to pay for nursing home care were examined in the Lewin/ICF and Urban Institute study. The lifestyle protection category does not allow assets to be used to pay for the nursing home stay. The other three cases for couples and two cases for single individuals first require the spend-down of asset income and then the use of varying percentages of non-food and housing consumption to pay for nursing home care. Almost

none of the elderly (roughly three percent of couples and less than one percent of single individuals) can pay for even one year in a nursing home without spending down some of their assets; stays become much more "affordable" if the elderly family is willing or is compelled to consume some or all of their assets. For example, 52.7 percent of married couples can afford a one year nursing home stay if the spouse remaining in the community becomes impoverished. In addition, only a minority of either group can afford to pay for even one year in a nursing home, and for those that can, paying for a year of nursing home care involves a serious reduction in an elderly family's quality of life.

Table 2-7

Percent of the Elderly Who Are Able to Privately Pay for Long Term Care

How Lifestyle Is Affected	Length of Nursing Home Stay		
	One Year	Two Years	Three Years
All Elderly Couples			
Lifestyle Protection	3.1%	3.1%	3.1%
Gradual Lifestyle Reduction	44.1%	26.7%	15.9%
Lifestyle Reduction	46.1%	27.2%	16.9%
Spousal Impoverishment	52.7%	34.3%	33.5%
Disabled Elderly Couples[a]			
Lifestyle Protection	3.4%	3.4%	3.4%
Gradual Lifestyle Reduction	35.6%	24.7%	17.8%
Lifestyle Reduction	36.8%	23.0%	17.8%
Spousal Impoverishment	36.4%	23.9%	23.9%
All Elderly Singles			
Lifestyle Protection	0.5%	0.5%	0.5%
Gradual Lifestyle Reduction	35.8%	33.0%	29.4%
Lifestyle Reduction	39.5%	35.3%	31.3%
Disabled Elderly Singles			
Lifestyle Protection	0.0%	0.0%	0.0%
Gradual Lifestyle Reduction	15.6%	14.2%	14.2%
Lifestyle Reduction	17.0%	14.2%	14.2%

Note: Disability is defined as requiring assistance with personal needs such as bathing, eating or dressing.

Source: Lewin/ICF and Urban Institute (1991) estimates based on a statistically matched data base of 1984 Consumer Expenditure Survey data and 1984 Survey of Income and Program Participation data.

IV. CAN THE ELDERLY PRE-FUND THEIR LONG TERM CARE EXPENSES?

A. Number of LTC Insurance Policies Is Still Low But Growing; Problems Marketing Plans Continue

Private long-term care insurance provides one of the few available mechanisms for the elderly to protect themselves against the catastrophic costs of long-term care. However, few older persons have decided to purchase this insurance and those who have often fail to maintain these policies. For example, less than one percent of expenditures for nursing facility and home and community-based services are currently paid by long-term care insurance (ASPE, 1994).

The long-term care insurance market has grown rapidly over the past decade. By the end of 1984, insurance companies had sold fewer than 50,000 policies (ICF, 1985). By 1992 there were 1.7 million policies in force (NAIC, 1994). A small number of companies dominate this three billion dollar market; 10 companies accounted for 70 percent of the premiums (NAIC, 1994). Despite evidence that nearly one-quarter of persons turning age 65 in 1990 are expected to require a year or more of care in a nursing home over the remainder of their lifetime and the fact that these nursing homes stays are very expensive (Kemper and Murtaugh, 1991), a relatively small percentage of the elderly have long-term care insurance. If one assumes that 90 percent of the policies in force are held by persons age 65 or older, less than five percent of the elderly have private long-term care insurance.[29] In contrast, approximately 75 percent of elderly Medicare beneficiaries have some form of individually purchased or employer-provided Medicare supplemental coverage (Chulis et al., 1993).

Many people who buy long-term care insurance policies fail to keep them until they need benefits. Based on data from ten companies, the Society of Actuaries estimated that more than half of purchasers lapsed their policies over a four-year period (1986 to 1990)

[29] Assuming 90 percent of persons with long-term care insurance policies in force are age 65 and over may overestimate the proportion that are elderly. Data from an HIAA study of purchasers indicated that 75 percent of purchasers were age 65 or older and that the average age of purchase was 68 in 1990 (Health Insurance Association of America, 1992). We would expect the proportion age 65 or older among policyholders to be somewhat higher than purchasers because many will have bought their policy in prior years.

(Corliss et al., 1995). However, the industry generally claims that lapse rates are much lower than previously thought and are steadily decreasing. They also point out that many lapses are due to factors such as death or replacement of older policies with newer, more appropriate policies. Purchasers who lapse for these reasons are not without coverage when they require it. Companies also point out that individuals who lapse did have coverage while they were paying premiums.

Long-term care insurance is a unique, new form of insurance that incorporates aspects of health, disability, and life insurance. It is like health insurance in that it offers coverage for health-related needs typically on a fee-for-service basis. Like disability insurance, some policies provide cash that can be used to cover a wide array of services that are necessitated by a long-term disabling functional or cognitive impairment. And, long-term care insurance, like life insurance, depends on prefunding a benefit that will typically be needed many years in the future.

Consumers purchase long-term care insurance to pre-fund the future risk, usually 10 to 20 years in the future, of needing long-term care services. Prefunding sharply differentiates long-term care insurance from acute care health insurance policies. Long-term care insurance is designed so that the consumer pays a level premium over the life of the policy. Purchasers will pay more than the amount necessary to cover claims in the early years of the policy and less than necessary to cover claims in the later years of the policy because claim costs in the early years of purchase (if purchase is prior to age 75) tend to be small but increase significantly as purchasers reach older ages. This also means that the cost of obtaining a new policy will be higher at older ages because the individual will have a greater likelihood of needing care sooner.

According to profiles developed by the Health Insurance of America (HIAA), products sold in 1993 typically used indemnity-based reimbursement for nursing home care and offered home care coverage for an additional charge, usually giving the purchaser the option of buying a daily benefit of one half the nursing home daily rate (Coronel and Fulton, 1995). Purchasers typically chose the level of daily indemnity benefit and whether or not that benefit level will

increase over time to attempt to keep pace with inflation. Benefit periods ranged from one year to unlimited length while deductible periods ranged from 0 to 100 days (see Table 2-8). Long-term care insurance premiums are age-rated (i.e., they depend on the age of initial purchase), are a function of which benefits are chosen, and are designed to be level over time.

Table 2-8

Typical Coverage Offered By 13 Leading Insurance Companies In 1993

Service Covered	• Skilled, intermediate, and custodial nursing home care • Home health care • Adult day care (offered by 12 out of the 13 insurance companies surveyed) • Alternate care (offered by 12 out of the 13) • Respite care (offered by 11 out of the 13)
Daily Benefit	• $40-$200/day nursing home • $20-$100/day home health care
Benefit Eligibility	• Medical necessity or needing assistance with ADLs or cognitive impairment
Maximum Benefit Period	• Unlimited nursing home (offered by 12 out of the 13)
Alzheimer's Disease Coverage	• Yes
Deductible Periods	• 0/20 - 90/100 days
Renewability	• Guaranteed
Preexisting Condition Exclusion	• Six months or less
Inflation Protection Option	• Five percent compounded for life
Nonforfeiture Benefit	• Return of premium or reduced paid up
Ages Marketed to	• 40-84
Waiver of Premium	• Yes
Free-Look Period	• 30 days
Marketing	• Company or independent agents

Note: Based on 13 companies representing 80 percent of the market. Unless otherwise noted, each feature is offered by all 13 insurers.

Source: Coronel and Fulton (1995).

Cohen et al (1993) used data from a survey of LTC Insurance Policy purchasers and non-purchasers to develop a demographic profile of each group. Mail surveys were sent to about 14,000 purchasers and 5,000 non-purchasers identified by six insurance companies

(who combined represented 45 percent of total individual LTC insurance sales in 1990) who participated in the project. Non-purchasers were identified as individuals who had been approached by a sales agent and had been presented with the details of the policies, but had chosen not to purchase a policy. Data on the key parameters of each purchaser's policy were provided by the insurance companies. The demographic mix of the purchasers and non-purchasers groups are quite similar when comparing marital status, education, income and assets (see Table 2-9). The groups are dissimilar in their age and gender composition. However, the typical policy purchased by individuals in each income group is quite different (see Table 2-10). Monthly premiums were positively associated with income category. This reflects the higher levels of benefits provided in the more expensive policies, and could possible reflect average age differences among the different income categories.

Although Cohen et al.'s findings help us to better understand who is purchasing LTC insurance and the characteristics of policies purchased, caution must be used when drawing policy conclusions from their analysis. Cohen et al. readily admit that elderly purchasers of LTC insurance (and those approached by insurance salespersons) are a select group of individuals. This group of individuals is most likely healthier than the overall non-institutionalized elderly population aged 65-80 (insurers seldom sell "affordable" policies to individuals over the age of 80). Thus, although one-third of purchasers reported incomes of less than $20,000 (in 1990), this does not imply that one-third of all elderly in this income category are potential LTC insurance purchasers.

Table 2-9

Demographic Profile of LTC Insurance Policy Purchasers and Non-purchasers Over Age 65, 1990

Demographic Characteristics	Purchasers	Non-purchasers
Age		
65-69	43%	39%
70-74	33	29
75+	24	32
Gender		
Male	39%	47%
Female	61	53
Marital Status		
Married	64%	65%
Unmarried	36	35
Education		
Less then high school	9%	11%
High school	30	28
Tech/trade/business	10	10
Some college	19	20
College graduate	32	32
Income (1990 dollars)		
Less than $20,000	33%	36%
$20,000-$24,999	15	15
$25,000-$34,999	20	19
$35,000-$49,999	16	15
Greater than $50,000	16	15
Liquid Assets (1990 dollars)		
Less than $20,000	17%	20%
$20,000-$29,999	8	8
$30,000-$49,999	12	11
$50,000-$99,999	24	22
Greater than $100,000	39	39

Source: Cohen et al. (1993, Table 2). Tabulations from a survey of purchasers and non-purchasers of private LTC insurance policies.

Table 2-10

Key Policy Characteristics Chosen by Elderly LTC Insurance Purchasers, by Level of Income, 1990

Policy design parameter	<$20,000	$20,000-$35,000	$35,000-$50,000	>$50,000	Total
Benefit duration					
Average (Years)	4.2	4.7	5.6	5.8	4.9
1 year	15%	7%	3%	2%	8%
2 years	23	18	13	8	17
3-4 years	28	35	30	31	32
5-6 years	16	20	25	29	21
Lifetime	18	20	29	30	22
Nursing home benefit					
Average daily payment	$61	$66	$74	$81	$68
Up to $40	16%	9%	6%	5%	9%
$41-$50	25	22	20	12	21
$51-$70	39	38	30	23	35
$71-$90	13	18	20	23	18
Greater than $90	7	13	24	37	17
Inflation protection	25%	30%	40%	39%	32%
Home health care	29%	41%	46%	58%	41%
Monthly premium					
Average	$90	$98	$105	$125	$101
Up to $50	23%	18%	13%	9%	17%
$51-$75	27	27	26	17	24
$76-$100	18	19	19	21	18
$101-$125	11	13	12	15	12
$126-$150	7	9	13	12	9
Over $150	13	14	17	27	6

Source: Cohen et al. (1993, Table 3). Tabulations from a survey of Purchasers (n=2,965) and of private LTC insurance policies, and a survey of six insurance companies representing 45 percent of individual LTC insurance sales in 1990.

According to a market review by HIAA conducted at the end of 1993, insurance companies had sold 80 percent of long-term care insurance policies directly to individuals through an agent, mass marketing, or a group association. Purchasers obtained the remaining 20 percent of long-term care insurance policies through employers (12 percent) or as part of a life insurance policy (8 percent) (Coronel and Fulton, 1995). According to a LifePlans study done for HIAA, the typical individual policy purchased in 1990 covered only nursing home care at $72 per day, with a 20-day deductible period, and a benefit duration of between five and six years for an annual premium of $1,071 (see Table 2-11) (HIAA, 1992). About four out of 10

purchasers selected home care benefits; these benefits averaged 50 percent of the selected nursing home indemnity amount. Because of changes in the features of policies offered since 1990, the typical policy purchased today may be somewhat different. Among the sample of persons age 55 and older interviewed by LifePlans, the purchasers were age 68 on average.

Table 2-11

Characteristics Of Individual Long-Term Care Insurance Policies Purchased In 1990

Policy Characteristic	Average
Policy Type	
Nursing home only	63%
Nursing home and home care	37%
Daily Benefit Amount of Nursing Home Care	$72
Deductible Period	20 days
Benefit Duration[1]	5.6 years
Individuals Choosing Inflation Protection	40%
Annual Premium	$1,071

[1] Based on an analysis of 14,400 individual long-term care insurance policies. Lifetime policies were assumed to provide benefits for 10 years in calculating average benefit duration.

Note: Only one company provided information on the value of the home health benefit. The majority of policies pay a home health benefit equal to 50 percent of the nursing home daily benefit amount.

Source: Health Insurance Association of America (1992).

A qualitative review of the long-term care insurance market conducted by Lewin-VHI that involved interviews of over 100 people involved with long-term care insurance, including representatives from 20 of the largest insurers and five state insurance departments highlighted several major barriers to people purchasing and keeping long-term care insurance policies. This review of the potential barriers to the purchase and maintenance of long-term care insurance highlighted areas of concern:

- Long-term care insurance is a product which is difficult to understand, which varies from company to company in ways that are not always obvious, and which is being sold to consumers who often have limited knowledge and understanding by agents who sometimes also have a limited knowledge and understanding of the product.

- Policies lock individuals into provisions that may not make sense for them or for the service delivery system several decades in the future.

The primary barrier to purchase and upkeep of a long-term care insurance policy related to the income and wealth of the elderly is the issue of affordability. For someone age 50 in 1993, an average policy with inflation protection cost $630 annually; at age 65, the same policy cost $1,452; and at age 79, the policy cost $5,076 (Coronel and Fulton, 1995). Even if people have a clear understanding of the need for coverage offered by long-term care insurance, they may fail to purchase and maintain a policy because the premiums are too expensive.

The inability to afford the premiums for a long-term care insurance policy has been offered as a reason why the elderly do not have long-term care insurance. For some individuals, particularly those with meager financial resources, it may be inappropriate to purchase long-term care insurance, particularly if that person would quickly qualify for Medicaid coverage. Others who might not spenddown to Medicaid coverage quickly still may find the premiums for long-term care insurance too high. Most people who seek information on long-term care insurance and then fail to purchase it cite the cost of the product as the major reason for their inaction (HIAA, 1992). Most studies that use minimum income and financial asset criteria to estimate the proportion able to "afford" long-term care insurance find that 10 to 20 percent of the current elderly population meet the specified criteria (Families USA Foundation, 1993; Friedland, 1990; Rivlin et al., 1986; Wiener et al., 1994). Using alternative assumptions (including policies with limited coverage and assuming the use of assets to pay for premiums) other research has found the percentage of the elderly who can afford private insurance to be higher (Crown et at., 1992; Cohen, 1992; Cohen et al., 1987) (see Table 2-12).

Table 2-12

Percentages of the Elderly Who Could Afford and Qualify for Private LTC Insurance

Subgroup and willingness to spend discretionary income [1]	Policy 1 [2]	Policy 2 [3]
25 % of discretionary income		
Married		
65-69	38.1 %	8.0 %
70-74	11.7	1.9
75-79	4.5	0.4
Unmarried		
65-69	29.8	4.1
70-74	9.1	1.4
75-79	1.2	0.0
Total 65+	15.7	2.9
50 % of discretionary income		
Married		
65-69	64.4	29.2
70-74	39.7	9.9
75-79	17.7	5.0
Unmarried		
65-69	62.7	19.8
70-74	30.7	7.4
75-79	11.7	1.2
Total 65+	35.0	12.1

[1] Discretionary income is defined here as pre-tax income less expenditures on necessities (i.e., expenditures for food, apparel, shelter, fuel, transportation, and health care expenditures).

[2] A typical basic plan which includes 4 years of coverage with a $100 daily benefit, no inflation protection, and a $2,000 deductible (1989 dollars).

[3] A typical "top of the line" plan: lifetime coverage with a $100 inflation-protected daily benefit and a $2,000 deductible (1989 dollars).

Source: Crown et al. (1992, Table 3). Uses income and wealth estimates from the 1984 Survey of Income and Program Participation.

Crown et al (1992) use data from the 1984 SIPP to estimate the income and wealth of the elderly, as well as the health status of each individual. To compute estimates of discretionary income for each individual, the authors use data from the 1984 Consumer Expenditures Survey (CES) to estimate a ratio of necessity expenditures (i.e., expenditures for

food, apparel, shelter, fuel, transportation, and health care expenditures) to income for each age-race-marital status group. This ratio was then multiplied by income estimates in the SIPP, making the assumption that the ratios were constant for individuals in each socio-demographic category. The authors used the ratio of expenditures on necessities to total pre-tax income from the CES.

Several experts interviewed in the Lewin-VHI study argued that affordability is not a black and white issue of the ability to pay, but rather an individual's perception of the value of the product relative to its cost. This implies that the decision to purchase and keep a policy and whether the product is affordable becomes not only an issue of financial resources relative to the premium costs, but also an individual's tolerance for risk, what they think of the company and the features of the policy, the level of coverage they are comfortable with (some individuals may choose to self insure for inflation), and whether other family members will assist with paying the premiums or premiums will be financed by home equity values.

Given the newness of the product, the extent to which premiums increase depending on the age at which the individual initially purchases the product, and the major focus of marketing to older consumers, the problem of affordability is not surprising. Affordability of long-term care insurance may change over time as individuals have a greater opportunity to buy products at younger ages, possibly through their employer.

The government could provide tax incentives to make long-term care insurance policies more affordable, thus encouraging more people to buy and keep them. Tax incentives would allow the individual buying the policy to deduct the premium from his or her gross income or to receive a tax credit against the amount of taxes she or he owes. These deductions could also be offered to employers who offer and pay for long-term care insurance policies. The government would probably not be able to justify these tax breaks using the argument that they will save the government money because the people who are most likely to receive tax breaks are those least likely to rely on Medicaid if they need long-term care. One study estimated that the tax loss would be four times as much as the Medicaid savings (Wiener, 1995).

Purchasing and keeping a policy until long-term care is needed does not guarantee that the policy will provide adequate protection against these costs. Using 1990 data, Alecxih and Lutzky (in press) estimated that approximately 13 percent of people with long-term care insurance policies who go into nursing homes will remain in these institutions longer than the coverage provided by their policy (see Table 2-13). In addition, given that the average daily cost of nursing home coverage in 1990 was $86[30] and the average daily benefit for nursing home costs purchased in a 1990 policy was only $72, people with long-term care insurance could be expected to pay an average of $5,110 per year out-of-pocket for nursing home care. These estimates are based on the assumption that people who purchase policies in 1990 were using services in 1990. In fact, out-of-pocket costs would probably be much higher because the person is likely use benefits several years after they purchased the policy and inflation will have affected the adequacy of their coverage. It has been estimated that only 40 percent of people over 55 purchase inflation protection where benefits increase over time. Without inflation protection, the amount of protection offered by a long-term care insurance policy declines dramatically with time (HIAA, 1992).

[30] Brookings/ICF Long-Term Care Financing Model.

Table 2-13

Percentage Of Policies That Can Be Expected To Provide Insufficient Coverage If The Person Is Confined To A Nursing Home.

Policy Duration	% of policies	% Exceeding this Limit Based on 1990 Nursing Home Data
1 year	4%	43.7%
2 years	19%	29.1%
3 years	12%	20.8%
4 -5 years	27%	11.8%
Lifetime	38%	0%
Average/total	5.6 years,	13%

Note: This table may underestimate the percentage likely to exceed their coverage limit. Because of data limitations, the four year policies were treated as five year policies and the 6 year policies were grouped with the lifetime policies.

Source: Health Insurance Association of America (1992) and the Brookings/ICF Long-Term Care Financing Model.

In summary, long-term care insurance is likely to provide more protection for more people against the costs of long-term care in the future. However, unless these policies are widely sold to people at younger ages, this funding option will not be feasible for a large portion of the elderly population. In addition, this insurance will only provide partial coverage of the costs of long-term care insurance for many of the people who purchase and keep a policy.

B. Life-Care Communities Are Expensive, But Still Popular

Another current personal financing choice is life-care (or continuing care) retirement communities (ICF, 1985, Phase I). A recent literature survey (Lewin-VHI, 1995) found that elderly couples or single persons who take up residence in a life-care community can expect to pay an entrance fee from $30,000 to $500,000 and a monthly fee from $500 to $2,000, depending on the number of individuals, the size of the occupied unit, and the services provided by the contractor. Life-care communities cover LTC, often including home and

institutional care, and many communities run their own nursing homes. Meals, social activities, and other services are also typically provided. Although life-care is very expensive, the long waiting lists to enter these communities indicates the potential for expansion. In addition to their high costs, many life-care communities experienced severe financial difficulties or went bankrupt in the early to mid 80s. Underpredicting the costs of maintaining the community and providing LTC services to residents has been a common problem.

Since life-care communities are so expensive, other studies (Cohen, Tell, and Wallack, 1987; Getzen, 1988) consider offering life-care services to the elderly in their own homes. Without the costs of providing housing and meals, "life-care at home" becomes much cheaper; the initial fee drops to $5,000 to $10,000, while the monthly maintenance charges are $130 to $200.

C. Other Options Which Have Been Proposed

Many other instruments for private LTC finance have been proposed (ICF, 1985, Phase I). For example, individuals might purchase a single premium annuity upon nursing home entry to pay for subsequent care. Also, LTC and life insurance could be combined; life insurance could pay full benefits until age 65, falling to zero by 75, while LTC benefits would rise from zero at age 65 to full coverage by age 75. Individuals might be permitted to take part of their employer pensions in a lump sum to pay for LTC (this is now possible for defined contribution plans if the pension has not yet been annualized).[31] Finally, the government could encourage the LTC insurance industry by providing reinsurance and informing the public about the lack of public assistance for LTC--many people still erroneously believe that Medicare will pay most nursing home costs. More work should be conducted concerning the design and affordability of these and other LTC financing options.

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[31] This source of funding is limited, as few individuals have pensions. ICF (1985, Phase II) estimates that just 44% of married couples and 25% of single individuals could receive a lump sum of $500 or more in 1980, although this potential source of income will become more important as pension coverage and income grow in the future.

D. Moran And Weingart: Federal Tax, Spending, and Regulation Policy Options

Moran and Weingart (1989) reviewed proposed legislation designed to encourage private LTC finance. One area of interest is encouraging asset accumulation--i.e., allowing devoted LTC IRA's or similar instruments.[32] LTC insurance premiums could be made tax deductible. Permitting LTC insurance to be part of employer sponsored "cafeteria plans," or allowing individuals to start dedicated IRA accounts whose funds are targeted solely for pre-funding or directly paying for LTC expenses, are two possible methods of conferring tax deductible status on LTC insurance. As with acute care insurance, the government could declare that employer provided LTC insurance benefits be tax deductible. The Moran and Weingart piece clearly demonstrates that most proposed legislation targets LTC pre-funding options more than direct LTC costs. The hope here is to encourage risk-pooling, although limiting the funding sources to IRA's may cause adverse selection biases and actually raise, rather than lower LTC insurance premiums. Any proposed legislation should consider the impact of incentive changes before enactment.

E. Unlocking Home Equity: Reverse Annuity Mortgages

One major problem related to private LTC financing is the form in which the elderly hold their wealth. The elderly's largest asset is typically owner occupied housing, and generating income from this source is difficult. Weinrobe (1989) and Jacobs and Weissert (1987) consider the opportunities for converting home equity with reverse annuity mortgages (RAMs). RAMs pay home owners a benefit stream now in return for future repayment, often when the home is vacated after the person dies or enters a nursing home. By tying the income stream to home occupancy, RAMs also encourage home as opposed to institutional LTC. Weinrobe lists four instruments for equity conversion: 1) sales agreements, where the home is transferred to the purchaser when vacated by the owner--this has proved unpopular both with elderly homeowners and purchasers; 2) reverse mortgages (RMs) with fixed disbursements and repayment periods; 3) split term RMs--the disbursement stream is fixed, while the

[32] Accumulating enough assets to directly pay for long term care expenses is unlikely for most families. This approach might be more successful in encouraging risk pooling and pre-funding arrangements.

repayment structure is fluid and repayment often occurs at the homeowner's death; and 4) occupancy income RMs. Jacobs and Weissert estimate 28 percent of the poor, 38 percent of the near poor, and 35 percent of the other aged could receive $2,000 or more a year from a RAM, which could be used to help pay for LTC insurance or other expenses.[33]

F. Moses: The Design Of The Medicaid Program May Discourage Private LTC Pre-Funding Options

Moses (1990) points out that all of these options depend on one critical assumption--individuals who receive Medicaid nursing home benefits have become impoverished. If this is not the case, there is little incentive to purchase LTC insurance or other private financing options. Currently, most states allow the elderly to keep their homes and still receive Medicaid LTC benefits if there is a chance the person will return to that home after his or her nursing home stay. More than ever before, assets and income for married couples are shielded from spend-down due to the 1988 Catastrophic Care Act.[34] Moses suggests that receiving Medicaid nursing home benefits does not have the same social stigma now as it did previously; more people look upon these benefits as a right or entitlement. If so, then Medicaid LTC benefits could remove the incentives for private LTC risk pooling and pre-funding.

The conclusion that Medicaid discourages LTC pre-funding options is certainly open to question. The quality of care that Medicare, and especially private pay nursing home, patients receive may well be superior to that received by Medicaid patients whose per diem facility charges are much lower. The relatively low levels of Medicaid reimbursement often result in Medicaid patients being the last patients to be admitted by nursing homes; waiting lists can be long. In addition, Medicaid patients may to some degree be cross-subsidized by private payers and Medicare patients. If all patients become Medicaid patients, the quality of care

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[33] It is by no means clear that the elderly are "overhoused." Venti and Wise (1989) present evidence suggesting that few of the elderly desire to reduce their level of home equity, and in fact, some wish to increase their holdings of this asset.

[34] Anecdotal evidence suggests that the elderly and their families can shield even more of their assets from asset spend-down than is intended under current law through careful legal and estate planning.

offered by nursing homes could decline. Each of these factors argue that individuals still have incentives to remain private pay patients, even in the presence of the Medicaid program.

IV. SUMMARY

For the elderly, poverty's impact has many dimensions. As previously mentioned, lower-income individuals as a group have poorer health and die at a disproportionately high rate. However, as Lee and Skinner (1994) point out, the relationship between economic status, disability, and mortality is not well understood. Individuals with poorer health generally have lower lifetime earnings and higher medical expenses, and individuals with few financial resources generally live in a less-healthy environment (i.e., their diet, housing, and access to medical care is inferior to that available to those individuals with greater income and assets). Disentangling the causality of these relationships is a difficult task. However, for policy reasons, it is important to disentangle the directions of causality.

The median and mean statistics of the income and assets of the elderly presented in Chapter 1 fail to convey the serious economic problems faced by many elderly. The elderly are at high risk of becoming poor. For example, while elderly poverty rates are low in comparison with other age groups in the population, the number of elderly people who eventually experience a spell of poverty is much larger. For those elderly in poverty, exiting poverty is very difficult. The elderly are unlikely to find good jobs at good wages, or marry into families with better economic resources, the two common poverty escape routes of the non-elderly. Elderly widows in particular face serious economic problems. Elderly women are much more likely to become and remain poor than any other group. Many of the resources of couples die with the husband, leaving even those widows who come from relatively affluent couples in difficult economic circumstances. Furthermore, the large financial burdens often incurred during the year preceding the death of an elderly spouse can have a profound effect on the household's level of assets.

For all of the elderly, the risks of entering nursing homes, and remaining there for long periods, are substantial. The Brookings/ICF Long Term Care Financing Model estimates the

lifetime risk of entering a nursing home at 40 to 50 percent; it predicts the risk of staying in a home for a year or more at roughly 20 percent. Currently, a year's stay averages over $36,000. Most of these expenses must be paid privately, as the major source of public finance, Medicaid, requires the elderly to spend-down most of their assets and contribute nearly all of their remaining income before qualifying for benefits.

Since few elderly have sufficient resources to pay for these costs without selling their home, LTC expenses are a clear candidate for instruments which spread the risks of institutionalization (and home care) across the potential care population, and/or which pre-fund this care. In 1990, only about five percent of the elderly population had private LTC insurance. Recent papers by various authors suggest that the potential market for LTC insurance could be as high as 42 percent of the elderly, although most studies put the estimate below 20 percent of the elderly. Other options, such as life care communities, are not yet widespread. The problems of designing and marketing LTC pre-funding options on the one hand, and affording these options and purchasing them when there costs are low (e.g., when people are young) on the other, plague this industry. Research in exploring new options, or encouraging the purchase of existing plans through government intervention, is continuing.

CHAPTER 3:
ECONOMIC THEORY AND THE ELDERLY-
MODELING SAVINGS BEHAVIOR

The previous two chapters summarized some of the basic economic facts for the current elderly population and discussed the implications of these facts on the ability of the elderly to privately fund LTC expenses. While this information tells us a good deal about the elderly's current situation, it does not indicate what the economic status of the elderly will be in the future. Economic theory helps explain how the elderly arrived at their current economic situation and helps to predict what the elderly's situation will be in the future. This chapter outlines three of the major competing economic theories of elderly behavior and presents evidence attempting to support or refute each theory.

Most economic theories of elderly behavior assume that the elderly are no longer in the workforce and are faced simply with the decision of choosing to either consume or save their economic resources. There is widespread disagreement on: 1) whether the elderly save or dissave; 2) their reasons for saving and dissaving; and 3) the form in which the elderly hold their assets.

I. EXPLAINING WHY AND WHEN THE ELDERLY RETIRE IS AS COMPLICATED A TASK AS EXPLAINING WHY AND HOW THEY SAVE

In this chapter, we assume that the decision to retire is fixed and exogenous. This assumption limits our focus to the various explanations of why the elderly save or dissave, as well as how the elderly choose to hold their wealth. A detailed review of the literature on retirement timing could be the subject for another paper (see, for example, Hurd (1990) for a fairly recent survey of the research on retirement choice). Ignoring this issue completely in this paper, however, would be a mistake. The choice of whether and when to retire is at least as

important to elderly welfare as the choice between savings and consumption. If the elderly delay retirement until later in life, the need to save before retirement is lessened.

At the simplest level, the choice of retiring or continuing to work is one of balancing the consumption of different goods, one of which is leisure. if the elderly delay retirement, they consume less leisure but have higher incomes with which to purchase other goods. The "opportunity cost" of leisure is the cost of foregone wages; as wages rise, leisure becomes relatively more expensive and individuals will substitute work for leisure. This is termed the "substitution effect" in the economics literature. While the substitution effect suggests that as real wages increase over time individuals will delay their retirements, these higher wages also raise income. If leisure is a normal good, people will want to consume more leisure as their income increases. This phenomena is termed the "income effect."

While the net effect of the gross income and substitution effects of higher wages on the retirement decision is ambiguous, several institutional realities in the U.S. economy have strongly encouraged earlier retirement. For example, the design of the Social Security program encourages retirement at the ages of 62 and 65.[35] Currently, covered individuals can start collecting partial Social Security benefits at age 62,[36] and can begin receiving full benefits at the age of 65. If a person elects to begin collecting benefits at age 62, he or she receives benefits which are 20 percent lower than if that person began collecting benefits at age 65.[37] Benefits also rise for individuals who delay collecting benefits until they are older than the age of 65. While the 20 percent penalty does offset the tendency towards early retirement, given current elderly life expectancy, the present value of benefits for those who start collecting benefits at age 62 are usually higher than those who wait until age 65 (or even later). To correct this imbalance, the penalty for starting early benefits will rise to 30 percent by 2022.

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[35] This discussion is based on Gustman and Steinmeier (1989).

[36] Disability benefits can begin at any age; widows can begin collecting old age benefits at the age of 60.

[37] Benefits increase 5/9 of one percent per month from age 62 to age 65.

Furthermore, the age when full benefits can be received will rise to 67, and the increase in benefits for those who retire after the age of 67 will also rise.

Another feature of the Social Security system which encourages the elderly not to work is the retirement earnings test (RET). Once elderly earnings rise above a given level ($11,160 for those aged 65 to 69 and $8,040 for those age 62 to 65 in 1994), any additional dollar of earnings reduces Social Security benefits (by 33 1/3 cents for those aged 65 to 69 and by 50 cents for those aged 62 to 65). However, the RET is being completely phased out in the next century.

For some individuals, the private pension system also encourages early retirement. While mandatory retirement at a certain age is uncommon in all industries and illegal in some, the design of a pension system can be just as effective in encouraging older workers to leave employment. Older pension plans are generally of the defined benefit variety, which pay retirees a fixed income based on that person's salary and tenure with the firm. Frequently, maximum benefits are reached by age 65 or even age 60; by continuing to work, older workers forfeit one or more years of lucrative benefits. In addition, many firms which wish to reduce employment offer older workers special one time early retirement incentives, such as: 1) adding years of service to an older worker's vesting schedule (e.g., a 55 year old worker with 25 years of service is treated as a 60 year old worker with 30 years of service); 2) a lump sum severance pay settlement; and/or 3) promising to let the retiree remain part of the employer's group health insurance plan and even continuing to pay all or part of that plan's premium for the retiree.

While the incentives for early retirement are clear, the potential for increasing the age of retirement in the future also exists. More and more, the pension plans available to employees are defined contribution plans, rather than defined benefit plans. In these plans, employees (and employers) contribute a fixed amount of money (usually a percentage of earnings) to a personal retirement account for the employee, which accumulates until retirement. Unlike defined benefit plans, defined contribution plans offer no particular incentive

to retire at a given age. At the same time, more and more jobs are being created in service industries where part-time and flexible schedules are more common. While the elderly may not wish to continue working forty hours a week, many employers are finding employing the elderly on a part-time basis to be highly profitable, given the elderly's experience, maturity, and desire to work. Some analysts predict that as both the relative and even absolute population of adolescents decline, some service industries such as fast food and retail sales will start employing the elderly in place of teen-agers.

II. THE LIFE CYCLE THEORY IS THE CURRENT ECONOMIC PARADIGM AGAINST WHICH MOST OTHER THEORIES ARE JUDGED

The life cycle theory of savings and consumption (Modigliani and Brumberg, 1954; Ando and Modigliani, 1963) states that individuals save and dissave assets so as to smooth the level of consumption over their lifetime.[38] Individuals accumulate assets while young and dissave during retirement to make up for lost earnings. The most simple form of this theory assumes that individuals: 1) are certain about their length of life; 2) have a known stream of earnings while young, followed by a period of zero earnings after retirement; 3) face a fixed and certain interest rate for saving and borrowing; have no borrowing or lending constraints; 5) have no incentive to bequeath assets at their death; and 6) place equal value on the utility of consumption in any period. The utility maximizing solution under these conditions is for individuals to consume an equal quantity of their lifetime resources in each period. To achieve this flat consumption path, the young save from their earnings and asset income, thus accumulating assets by retirement. These assets allow the elderly to maintain their pre-retirement level of consumption until they die.

Many of the features of the simple life cycle hypothesis can be relaxed, and the prediction that the elderly will dissave their assets still holds. If earnings are uncertain, risk averse individuals will save more out of current income to insure against future earnings

[38] The life cycle model is also referred to as the permanent income model, because it assumes that individuals make consumption choices based on expected lifetime income, rather than on current income.

losses. Once old, the elderly will still dissave their accumulated assets, smoothing future consumption. The assumption that individuals value their consumption equally in each period of life is certainly open to question. Individuals may discount the future, or feel that consumption while old is worth less than consumption while young (consumption and youth may be complementary--i.e., people enjoy consuming more when they are young and healthy rather than when they are old and less ambulatory). Likewise, individuals may purchase a larger stock of durable goods while young so they can receive the benefits from this stock over time. Thus, individuals may be smoothing their actual consumption over time, but expenditures (which are often used as a proxy for consumption) may not be smooth over time.

Ando and Modigliani (1963) are among the first to test the implications of the life cycle theory. Using aggregate time series data from 1929 to 1939 and 1946 to 1959 (the war years from 1940 to 1945 are omitted), they discover guarded evidence supporting the basic theory. As the authors readily admit, this study is far from conclusive--the limited number of time series observations require many simplifying assumptions and only permit a very limited form of the theory to be tested. In addition, the life cycle theory is a model of individual, not aggregate, behavior, which suggests that micro level data be used in statistical tests.

A. Tests Of The Life Cycle Theory Which Use Cross-Sectional Data Find Little Evidence In Favor Of The Theory

Mirer (1979) uses cross-sectional data to test the life cycle theory and finds mild evidence in support of this theory. Using the Demographic and Economic Characteristics of the Aged (DECA) Survey from 1967, Mirer tries to answer the simple question of whether wealth appeared to decline with age. He restricts his sample to married couples where the husband is 65 or older,[39] and analyzes the total wealth of the elderly. Unfortunately, DECA does not include business or farm assets or the equity in rental property, and as with all survey data, assets (particularly financial assets) are substantially underreported.

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[39] Mirer concedes the point that the single elderly behave quite differently.

Mirer specifies a simple model where wealth is a function of age. In the simple cross-sectional equation [Wealth = α + β*(Age - 64)], Mirer finds the coefficient on age (β) to be negative, but small and insignificant. However, as Mirer points out, this coefficient is biased towards zero, since older cohorts tend to be less educated (education and wealth are highly correlated), and general economic growth improved the lifetime resources of the more recent elderly by 1967. Mirer attempts to correct for cohort effects by assuming a steady-state population and a constant growth rate of elderly wealth. These are heroic assumptions at best, and clearly indicate the need for longitudinal analyses.

Mirer controls for changes in educational attainment over time. By including dummies for 0-6 and 7-8 years of schooling, some high school, and some college, the negative coefficient on age vanishes and the relationship between age and wealth is, if anything, weakly positive. To his credit, Mirer concedes that this result, while damaging to the existence of the life cycle theory, is not as strong as tests based on longitudinal data, and may be contradicted by such information.

The other basic weakness of all studies of the wealth of the elderly, which Mirer discusses, is the thornier one of sample selection. Estimates of the wealth of the elderly suffer from upward biases, since any study of the elderly is limited to looking at survivors. It is well established that poor individuals, ceteris paribus, have higher mortality rates, leaving a higher than normal proportion of the relatively well-off in any consecutive sample of the elderly over time.

Danziger et al. (1982) support Mirer in casting doubt on the validity of the basic life cycle model. The authors use the 1972-73 Consumer Expenditure Survey (CES) to analyze the consumption patterns of elderly family units.[40] They restrict the sample to just 1973 family units who are in the sample for the entire year; the CES is also limited by consisting of solely non-institutionalized individuals. Danziger et al. found that the elderly, far from consuming most or all of their income, seem to consume less of their income than younger cohorts (see

[40] The authors use the age of the head of the household to determine the age of the family unit.

Table 3-1).[41, 42] The average propensity to consume for families aged 65 to 71 or 71 and over range from 0.45 to 1.09 (for all consumer units), which is lower than the 0.53 to 1.52 range for families under the age of 65.

Table 3-1

Average Propensity to Consume by Income Quintile and Age: 1973 (Mean Incomes in 1992 Dollars)

	After Tax Income Quintile[1]						
Age of Head	First	Second	Third	Fourth	Fifth	All Income Classes	Mean Income
All Consumer Units							
Under 35	1.52	1.01	0.80	0.68	0.60	0.78	$37,160
35 to 54	1.29	0.88	0.76	0.67	0.59	0.66	$52,394
55 to 61	1.10	0.81	0.70	0.62	0.53	0.62	$47,711
62 to 64	1.13	0.75	0.72	0.62	0.54	0.65	$39,026
65 to 71	1.10	0.83	0.71	0.64	0.52	0.71	$30,272
Over 71	1.01	0.79	0.68	0.59	0.45	0.73	$22,379
Couples							
Under 62	2.02	0.98	0.75	0.63	0.55	0.67	$45,989
62 to 64	-	0.81*	0.70*	0.60*	0.54*	0.65	$41,686
65 to 71	1.24	0.79	0.72	0.63*	0.49*	0.68	$35,967
Over 71	1.09	0.82	0.66	0.59*	0.38*	0.69	$28,982

* Indicates cell contains fewer than 50 observations. Blank cells cannot be estimated at all.

[1] Income quintiles refer to the income distribution for that age group; being in the top quintile for different age groups does not imply having an income which exceeds the same threshold.

Source: S. Danziger et al.(1982).

However, Hurd (1990) presents a different interpretation of their findings. Hurd points out that when individuals are young, their current income is lower than their permanent income so the life cycle theory suggests they will have a higher ratio of consumption to after-tax

[41] If the elderly consume out of accumulated wealth, as the life cycle theory suggests, consumption could well exceed income for many of the aged.

[42] These numbers should be viewed cautiously. As Hurd (1990) points out, the very low average propensities to consume imply rates of saving and wealth accumulation that are much higher than is observed in the United States during this period.

income. As current income rises relative to permanent income during the middle-aged years, the ratio of consumption to after-tax income will fall. Then, during the elderly years, this ratio will rise as current income falls below permanent income levels.

These cross-sectional studies certainly question the basic validity of the life cycle theory. It cannot be overemphasized that cross-sectional tests suffer from a serious, basic flaw--they fail to analyze the consumption and savings patterns for a particular group of the elderly. If cohorts of the elderly differ in the level of basic lifetime resources, education, and sexual and marital composition, then using estimates based on a cross-sectional data set to make general claims about the pattern of elderly income and wealth is a suspect and perilous exercise at best. As noted in Chapter 1, cross-sectional comparisons between the current elderly and baby boomers should be made with the understanding that significant economic events--such as high inflation, a dramatic increase in relative housing prices, expansion of the Social Security Program and private pension programs, and a long period of economic growth during the 50s, 60s, and 70s--benefited the current elderly.

B. Tests Using Longitudinal Data Have Tended To Support The Life Cycle Theory

A logical next step is to analyze the findings from longitudinal studies. Although longitudinal data is better suited to analyze the life cycle theory than cross-sectional data, researchers are generally forced to use more dated data. Two common data sources are the Panel Study of Income Dynamics (PSID) and the Longitudinal Retirement History Survey (LRHS).

Friedman and Sjogren (1981) employ the 1969 to 1979 LRHS, which contains information for a fairly young (58 to 73) group of the elderly, some of whom may not have started the dissaving phase of their life cycle. As previously mentioned, Friedman and Sjogren (1981) find that median and mean wealth decline for elderly couples, while mean income also decreases for single men and women from 1968 to 1974. Although median income for the

latter two groups increases, the increase is quite small. Their findings lend support to the life cycle theory.

Hurd (1987a) believes that adjusting the level of housing wealth held is extremely difficult for the elderly, and consequently should not be a choice variable when determining the optimal level of wealth held by the aged. Using the 1969 to 1979 LRHS, Hurd finds that the elderly consume a substantial portion of their "real non-housing bequeathable wealth" (which he defines as those assets, excluding housing, which can be bequeathed) (see Table 3-2). Thus, Hurd's findings support the life-cycle theory.

Table 3-2
Percentage Change in Bequeathable Wealth from 1968 to 1978

Elderly Households:	Have Children	No Children
Single Elderly	-38.0	-32.6
Elderly Couples	-16.8	-1.7
All Elderly	-28.2	-24.2

Source: Hurd (1987a). Tabulations from the Longitudinal Retirement History Survey.

Sheiner and Weil (1992) report findings similar to those of Hurd. Sheiner and Weil are specifically interested in investigating the housing wealth of the elderly and how patterns of elderly home equity holdings and home ownership change over time. The authors' data sources are numerous, including the 1983 Survey of Consumer Finances (SCF), the 1983 and 1988 Current Population Survey (CPS), and the 1968 to 1987 Panel Study of Income Dynamics (PSID).[43] In contrast to Venti and Wise (1989) and others, Sheiner and Weil find that the housing wealth and rates of home ownership of the elderly decline over time,

[43] The authors use several statistical techniques, including analyses of a single cross section (the 1983 SCF), the use of multiple cross section/cohort methods (comparing cohorts in the 1983 CPS with corresponding individuals who were five years older in the 1988 CPS), and panel study methods (with the 1968 to 1987 PSID).

particularly for persons age 75 and older. The authors also discover that not all of this decline in housing wealth is matched by a corresponding increase in other assets--the elderly appear to consume some of their housing wealth.

From the evidence presented, however, it is difficult to determine whether Sheiner and Weil's results directly support the life cycle hypothesis. For example, the elderly could be selling off some of their housing wealth to give their heirs inter vivos gifts, which would appear as consumption. In addition, the finding that the elderly consume their housing stocks more rapidly when over the age of 75 could indicate that they are consuming their housing to pay for unexpected medical expenses.

John Shea (1995) uses the PSID to test a central implication of the life-cycle hypothesis--that aside from shifts in tastes and interest rate fluctuations, household consumption growth should not respond to predictable movements in income. This is because households base their consumption in each time period on permanent income (expected lifetime income), rather than current income. Shea finds a significant correlation between predictable wage movements and changes in consumption, contrary to the implications of the life-cycle hypothesis. Interestingly, Shea also finds that consumption responds more strongly to predictable income declines than to predictable income increases.

To summarize, most cross-sectional studies fail to find evidence supporting the simple version of the life cycle hypothesis--the old do not consume more out of a given level of income than the young in most cross-sections. However, tests of the life cycle hypothesis based on cross-sectional studies are seriously flawed, as they do not determine the saving and consumption patterns of a given group of the elderly over time. Fewer longitudinal studies of the elderly's income and wealth have been undertaken than cross-sectional studies, but the majority of longitudinal studies lend support to the life cycle theory. Certainly, new longitudinal studies based on more recent data (such as the 1992 to 1999 Health and Retirement Survey) are needed to confirm or reject these earlier findings before maintaining the life cycle hypothesis as cornerstone in the theory of intertemporal consumer savings behavior.

Still, the life cycle theory cannot explain some basic economic facts--that many workers retire without any wealth; many elderly who do have assets continue to save; and many of the elderly die with considerable assets. The inability of the life cycle model to fully explain savings behavior reflects the heterogeneity of the elderly--the elderly are a diverse group, and savings behavior will vary from person to person--as well as potential capital market constraints and uncertainty about the number of remaining years of life.

III. WHY THE ELDERLY MIGHT CONTINUE TO SAVE: THE PRECAUTIONARY SAVINGS MOTIVE

The elderly may be responding to economic motivations and pressures other than those considered by the life cycle theory, which only considers how individuals can smooth their lifetime consumption path. Savings is a method of insuring against the costs of uncertain events, such as long life, unemployment or low wages, or catastrophic medical expenses. Uncertainty about the length of life can be a strong motive for saving. In a hypothetical world where individuals are certain about their length of life, they can accumulate savings while young to supplement consumption during retirement. Such a simple life cycle model implies a steady and rapid dissaving for the elderly until death. When the time of death is unknown, the elderly who follow this simple plan may be left with no assets before their lives have ended. This uncertainty causes the elderly to dissave at a slower rate (or even continue to save while relatively young) as a precaution. Many studies have attempted to estimate the optimal consumption path for households facing uncertainty and borrowing constraints, including recent studies by Carroll and Samwick (1993) and Hubbard, Skinner, and Zeldes (1993).

A. The Elderly May Save To Insure For A Long Life

As pointed out by Levhari and Mirman (1977), Barro and Friedman (1977) and others, consumption under certainty and uncertainty is similar in the presence of actuarially fair insurance (annuities). Davies (1981) finds that in the absence of fair annuities, people who are uncertain about the length of their life will consume less and save more, and may continue to save while they are old. In his model, savings will increase: 1) if people are more fearful about

the future (risk aversion); or 2) if consumption at one time in life is not a good substitute for consumption in another (the elasticity of intertemporal substitution is low)--i.e., if people did not care much about when they consumed resources, they could consume most of their resources early in life without lowering their welfare.

B. Wage Uncertainty While Young Could Increase Accumulated Assets By Retirement

In addition to uncertainty about the length of life, an unstable job market--especially in the years just prior to retirement--could cause the non-elderly to save more. Skinner (1987) points out that the impact of uncertain earnings on lifetime savings can be quite large; his micro simulation model estimates 54 to 56 percent of savings are a precaution against the risk of uncertain income. Precautionary savings increase with higher risk aversion and tighter borrowing constraints.[44]

C. Tests Of The Life Cycle Theory Are Often Used to Test For Precautionary Savings Motives

Many of the studies discussed above which test the life cycle theory claim to find evidence for precautionary savings. This is largely a negative inference; typically, a researcher tests the life-cycle theory by determining if the elderly appear to dissave. If no evidence is found which indicates dissaving occurred, the author assumes the presence of a precautionary motive for savings.

Whether a lack of dissaving is prima facie evidence for precautionary savings is certainly open to question. Elderly individuals may well continue to save to leave bequests, in addition to saving to hedge against future uncertainty. In addition, the precautionary motive for saving does not preclude dissaving; it merely slows the rate of dissaving. Risk averse elderly individuals facing future uncertainty can still insure against these risks without having to conserve their level of wealth (or even increase it).

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[44] If individuals can borrow freely at the same rate of interest they receive on savings, then they can smooth out shocks to their earnings streams through borrowing, reducing the incentives for precautionary savings. Restrictions on borrowing limit this option.

D. Private Markets For Insuring Against Wage And Length Of Life Uncertainty Are Poor

Looking only at patterns of elderly savings may not provide the best evidence for or against the existence of a precautionary motive for savings, since the existence of this motive is consistent with many different patterns of elderly saving. Instead, one might consider the forms in which the elderly hold their wealth.

The classic method of dealing with uncertainty is purchasing insurance. For the non-elderly in their working years, perhaps the most important source of risk is the uncertainty of wage income (Skinner, 1987). While unemployment insurance offers some protection against the costs of losing one's job, and disability insurance covers the risks of accidents, both clearly do not insure workers against all wage uncertainty and risk. Private insurance alternatives typically only cover the risks of disability and death. One cannot buy coverage against the risks of future macroeconomic conditions on wages, promotions and salary adjustments, and a host of other uncertainties.[45] The major option for workers to insure against future uncertainty is savings; in the absence of insurance markets, workers may well oversave.

For the elderly after retirement, wage uncertainty is no longer important. The elderly are much more concerned with investment risk, inflation, uncertain length of life, and the potential for catastrophic medical expenses. The latter risk is discussed at length earlier in the paper. For the first three, the classic remedy is the purchase of inflation-indexed annuities.

E. The Popularity Of Social Security Offers Indirect Evidence Supporting The Existence Of The Precautionary Motive

While private annuity markets are often poor, the enormous popularity of the Social Security program among the elderly makes a strong case for the existence of a precautionary motive for savings. In fact, if a precautionary motive for savings exists, the introduction of a

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[45] Economists believe that this type of insurance does not exist for two reasons: 1) excessive adverse selection--individuals most likely to buy insurance would be the worst risks, so premiums become excessive; and 2) moral hazard--those who purchase such insurance could systematically alter their behavior, thus increasing their chances of collecting benefits. For example, someone insured against the risk of not getting a promotion may not try as hard to gain that promotion.

Social Security system should reduce private savings (and increase social welfare), since it provides the current elderly with insurance against much of their uncertainty. Social Security offers workers similar protection in the future. Starting with Feldstein in 1978, many studies conclude that the Social Security system is strongly associated with lower aggregate savings.

Hubbard (1988), points out that the fact that many private pension plans are "integrated" with the Social Security system is more evidence for a precautionary motive for savings. An integrated pension plan ties pension and Social Security benefits; as Social Security benefits rise (or fall), pension benefits fall (or rise) to offset in part these changes. Frequently, integrated plans pay extra benefits to beneficiaries with (past) wages in excess of the Social Security maximum (the maximum earnings subject to Social Security taxation each year). Thus, in a defined contribution plan, the employer might contribute 4 percent of a worker's salary to the pension plan up to the Social Security maximum, and 8 percent for earnings above that maximum.[46] Hubbard feels that this is a system of pension rationing. Low income workers are largely insured against uncertainty when old through the Social Security system. High income workers can only insure themselves up to the Social Security maximum through this system, and choose to take more of their current compensation in the form of pension assets.[47]

IV. DO THE ELDERLY SAVE TO LEAVE THEIR CHILDREN AN ESTATE: THE BEQUEST MOTIVE

Neither the life cycle theory nor the precautionary savings theory can fully explain lifetime savings behavior. A third major theory is that the elderly save to leave their children an

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[46] Pension plans fall into two basic categories. In a defined contribution plan, an employer contributes a fixed amount of money for the covered worker each year (this is typically a percentage of wages). Future benefits are uncertain, and the worker bears all of this risk. In defined benefit plans, employers guarantee workers some fixed (usually unindexed) pension amount, which is usually a function of the worker's wages and years of service.

[47] Higher income workers also face higher levels of taxation on current wage income, and often favor having more of their compensation take the form of pension assets for the tax advantages.

estate: the bequest motive.[48] Many bequests may be unintentional--with uncertainty about the length of life, many elderly could die with positive assets, particularly if annuity markets do not function well. When the bequests are deliberate, however, theories predicting such behavior are largely divided into two types: 1) altruistic or non-strategic bequest motives--the parent cares about the welfare of his or her children, and provides these children with bequests; such behavior is non-strategic because the action of the parent is not intended to influence the behavior of the children; and 2) the strategic bequest motive--parents use the promise of inheritance to alter their children's behavior (for example, bequests might be tied to the children visiting the parents).

In this section, we discuss two seminal papers in this field and relevant empirical research supporting or refuting these theories. Then, we discuss the implications from these findings on the long term care of the elderly.

A. Barro: Parents Love Their Children

In a seminal paper, Barro (1974) developed a theory in which parents care about the continued welfare of their children (i.e., the children's utility is an argument in the parents' utility function).[49] Barro's model assumes that parents care about their children's welfare, and thus include the utility of their children as an argument in their utility functions. The parents' economic decision is thus one of allocating their personal resources between their own and their children's consumption. The model predicts that parents will give their children gifts (intergenerational transfers), unless the parents are at a corner solution.[50] Parents then die, and their children in the model then become parents, and this dynastic cycle continues. This

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[48] The word children will represent any potential heir of an estate, with the exception of a surviving spouse. Since the family is often the unit of analysis in economics, the part of any estate inherited by a surviving spouse is still available to that family unit's consumption.

[49] Many elderly may not desire to leave bequests, even though they care about their heirs (Hurd, 1987; Abel, 1985).

[50] In a corner solution, the best allocation of resources for an individual is to consume none of a particular good. For example, I may want to purchase a luxury car, but if its price is too high or my resources are too low, I may be better off spending my resources on food and shelter.

model does not require parents to transfer assets to their children only at death; parents make their children inter vivos gifts.

The main focus of Barro's paper was not lifetime savings behavior, but rather a proof of the Ricardian Equivalence Theorem, which states that individuals are indifferent between the government raising revenue through non-distortionary taxation or borrowing (issuing government bonds). Thus, Barro's theory yielded no certain or testable predictions concerning lifetime savings or wealth. This paper did, however, spark a very active and heated debate on this issue. Becker (1974) presents a model quite similar to that of Barro, his famous "rotten kid theorem." In his model, Becker allows the child's behavior to influence the amount of intergenerational transfer which takes place.

B. Bernheim Et Al.: Do Mom And Dad Manipulate Their Children?

Bernheim, Schleifer, and Summers (1985) are not satisfied with the precautionary savings and altruistic bequest motive theories just described. To dispute the precautionary savings theory they cite a 1983 study of the TIAF-CREF pension system, which covers university employees. Here, a group of highly educated people, who are offered a quite generous annuity option at retirement, typically chose other investments for their retirement funds. Bernheim and his fellow authors correctly point out that non-strategic bequest theories, such as Barro's, are theories of parental gifts, not bequests. A truly altruistic parent should prefer inter vivos gifts to bequests for several reasons: 1) gifts can ease the impact of liquidity constraints on children early in life;[51] 2) the child can convert the gift to an annuity and optimally allocate the gift to consumption over more of his or her life; and 3) as the child's length of life is also uncertain, a gift which predates a bequest has a greater probability of

[51] A person is liquidity constrained when he or she faces an imperfect capital market, in which the person cannot borrow freely at the same rate of interest paid on savings. Perfect capital markets are a theoretical construct, not a practical reality, and most people would agree that the young are often prevented from "freely borrowing" even at very high interest rates.

being consumed and enjoyed before the end of the child's life. Why then, the authors ask, are inter vivos gifts so rare in comparison to bequests?[52]

Their explanation, while cynical, has a certain elegance and yields empirically testable hypotheses. The authors posit that a game is being played by parents and their children, in which the parent uses the promise of a bequest to alter a child's behavior; this behavior is the amount of personal attention children give their parents. Parents are still altruistic, in the sense that they care about their children's welfare, and will bequeath any of their remaining assets to their children after their deaths. On the other hand, the parents use the promise of an inheritance as a lever to increase personal contact (e.g., visits and phone calls) with their children. Notice that if parents hold their wealth as annuities, or give their children inter vivos gifts, children no longer have an incentive to pay more attention to their parents.

The authors test whether or not a positive relationship exists between the amount of attention children give to their parents the amount of potential inheritance. The authors use the 1971 and 1975 waves of the LRHS to empirically test their theory and measure several equations of the following form:

$$Attention_i = b_0 + b_1 * Beq.\ Wealth_i + \sum_{j=2}^{N} b_j * Parent\ Characteristic_{ji} + e_i$$

where the index i refers to family i, beq. wealth is the bequeathable wealth of i's parents, and the parental characteristics are variables such as the parents' age and state of health.

The authors find marginal evidence to support the strategic bequest motive. Neither Bernheim nor his fellow authors would claim that the only motives for visiting or calling elderly relatives is the selfish expectation that such behavior will result in economic gain to the

[52] The authors are a bit careless here. Defining a gift is difficult--the gift of a parent to a child could be college tuition. What is a gift and what is a normal expense of raising children is not clear. Still, given the tax advantages of giving gifts (up to $10,000 a year can be given to a child tax free), it is strange to see so few "pure" gifts from parents to their children in the United States.

children. In fact, the authors readily concede that their model helps explain the amount of attention children pay to their elderly parents at the margin.

This paper does find that in multiple child families, the parents' estate is often left to the child who provides the parents with the most informal care. Frequently this arrangement is made with the explicit or tacit agreement that this is the "fair" thing to do. Kotlikoff and Spivak (1981) suggest that such "provider" agreements between parent and child may also be viewed as an annuity if the child promises to support the parent should the parent live longer than expected. Children visit their parents for many reasons (companionship, love, and trust, to name a few), and economic considerations are certainly only a small factor in this decision.

C. Implications From Empirical Findings On Bequest Motives

Empirical evidence of a bequest motive is mixed. This reflects the difficulty of empirically untangling the complex issues involved in any relationship, data limitations, and the heterogeneity of the elderly. Kotlikoff and Summers (1981) find evidence to support the argument that bequest motives strongly influence savings behavior, while Modigliani (1988) believes that, compared to the life cycle and precautionary motives for saving, bequest motives play a relatively minor role in explaining savings behavior.

Hurd (1987a) finds that elderly persons with children consume more of their bequeathable wealth than those with no children (see Table 3-2). The reasons for this "curious" finding are not at all clear. Couples may have already given their children inter vivos gifts (i.e., gifts made when the parent is alive), so that their "bequest motives" are fulfilled before retirement, leaving their remaining assets for themselves. It is also possible that households with children have lower average assets at retirement than households who are childless, and so spend a higher fraction out of a smaller stock of wealth. Still, Hurd's finding presents weak evidence against the existence of bequest motives.

Avery and Rendall (1994) forecast that baby boomers will receive, over their lifetime, approximately $12.4 trillion (in 1994 dollars) in bequests, from approximately 115 million

bequests. This translates to a mean bequest of $108,000. Many boomers will receive very small bequests, or no bequests at all, because the distribution of bequests--like the distribution of wealth--is highly skewed. Estimates of median transferable wealth presented in Chapter 1 (i.e., median net worth minus such things as pensions and Social Security) indicate that the typical household will receive very little in bequests. A recent study by Smith (1994) finds that the bequest motive is more likely to affect savings behavior among more affluent households. His findings suggest that bequests are a luxury good, and the bequest motive only operates for those elderly households with sufficient resources to cover their costs of living and potential future health care expenditures.

One recent study (Auerbach et al., 1995) estimates the fraction of total lifetime resources held as bequeathable and non-bequeathable, or "annuitized" wealth. Bequeathable wealth includes non-human wealth (i.e., time deposits, stocks, bonds, housing stock, other real estate holdings, ownership shares of private businesses, etc.) and the value of life insurance benefits. Annuitized wealth includes the present discounted value of future earnings, Social Security benefits, private and government employee pension benefits, government health care benefits, welfare benefits and other government transfers, and the present value of future taxes (a negative annuity). The authors estimate that the fraction of total lifetime resources held as annuitized wealth increased from 23 percent to 51 percent for elderly men from 1960 to 1990. This increase in annuitized wealth for elderly men was exactly offset by a decrease in annuitized wealth for non-elderly men[53]; annuitized wealth's lifetime share of total economic resources for men remained at 74 percent from 1960 to 1990. For both all women and for elderly women, however, annuitized wealth's fraction of total lifetime resources increased substantially from 1960 to 1990, from 34 percent to 59 percent for all women and from 13 percent to 54 percent for elderly women.

[53] The decline in annuitized wealth for non-elderly men is due in large part to an increase in the present value of their future tax burdens, a negative annuity.

Auerbach et al. believe that increases in annuitized wealth, particularly among the elderly, has depressed national savings. Annuitized wealth allows individuals to maintain higher levels of consumption, and reduces the level of unintentional bequests. According to their calculations, if the share of annuitized wealth for each age/gender group remained fixed at its 1960 level in 1990, the flow of bequests in 1990 would have increased by $136.3 billion and would thus have increased national savings in that year by 87 percent.

V. SUMMARY

This chapter discusses three major theories to explain elderly consumption and savings behavior. The first of these is the life cycle theory, which is still the cornerstone upon which almost all theories of lifetime saving and consumption behavior are based. The life cycle theory predicts that individuals will save during their working years to supplement their levels of income during retirement. Among its major virtues, the life cycle theory is simple, elegant, and its implications do not change significantly under very different sets of assumptions. However, while current evidence based on longitudinal studies suggests that the elderly are dissavers, the rate of dissaving by the elderly appears small compared to the levels predicted by the life cycle theory.

One major adjustment to the life cycle theory is to include precautionary motives for savings. We all live in an uncertain world, and for the elderly, that means facing the risks of underestimating remaining years of life and/or incurring catastrophic medical expenses. Saving is one way of insuring against these risks, and may be the only method of insuring against certain risks. Unfortunately, clear tests of this theory are difficult to formulate, as the theory is consistent with many different sets of facts. For example, rather than predict that the elderly will save, precautionary theories may instead only predict that the rate of elderly dissaving slows.

While direct tests of precautionary savings motives are hard to formulate, indirect evidence suggests that the elderly's fears about their uncertain future affects their behaviors.

In particular, the huge popularity of social insurance programs which protect the elderly against the risks of long life and (some) catastrophic medical expenses, namely, Social Security and Medicare, indicates that precautionary motives exist. This is particularly true if the creation or expansion of such programs can be statistically associated with lower savings rates (as risks decline, the need to save declines as well). Hubbard, Skinner, and Zeldes (forthcoming) combine a life cycle model with a precautionary savings model, while attempting to control for the behavioral effects of means-based social insurance programs.

A final theory discussed in this chapter is bequest motives. Parents may derive satisfaction from leaving their children an estate. The desire to bequeath assets to the next generation logically implies that the elderly will not consume their assets as rapidly as they would in the absence of this motivation. Two versions of the theory on bequest motives, those of Barro (1974) and Becker (1974), are "non-strategic"; the parents' motives for giving their children gifts are purely altruistic. Parents only care about the future welfare of their children and do not use their bequest to alter their children's behavior. Unfortunately, neither of these versions is specifically a theory of elderly consumption and savings, and both only predict that parents have incentives to give their children gifts. These gifts may come before the end of the parents' lives (inter vivos gifts), rather than be given as bequests.

The competing "strategic" bequest theory of Bernheim, Schleifer, and Summers (1985) starts by asking the question "why are most intergenerational gifts bequests and not inter vivos gifts?" Bequests may be unintentional; parents often die before consuming all of their wealth, and thus leave the remainder to their children. This in turn begs the question, why do the elderly fail to convert their wealth into annuities, insuring themselves against long life and guaranteeing that all of their wealth is consumed? The traditional response to this line of reasoning is that annuity markets offer poor returns; however, the authors present evidence that even individuals offered fair rates of return on annuities spurn them as an investment choice. Bernheim et al. theorize that parents and children are playing a game, where elderly parents reward their children with bequests in return for having more attention paid to them (on

the margin). Regression equations are employed by the authors which find evidence supporting their theory.

Clearly, no one theory can hope to completely explain savings behavior. Individual savings behavior is a reflection of their rate of time preference, their motives (e.g., if they want to leave a bequest to their heirs), their ability to smooth consumption over time, and their risk aversion. The inability of any one theory to explain savings behavior is a reflection of the diversity which exists among the elderly.

CHAPTER 4:
CONCLUSIONS AND AREAS FOR NEW RESEARCH

I. CONCLUSIONS FROM PAST EMPIRICAL RESEARCH ON THE ECONOMIC STATUS OF THE ELDERLY

The existing empirical evidence suggests that the elderly as a group are doing well economically, relative to younger cohorts and relative to their own past. Evidence from several cross-sectional surveys and longitudinal surveys from the 1970s through the 1990s indicate that elderly households had cash incomes which were approximately two-thirds the cash income of non-elderly in recent years. If the effects of taxes, in-kind transfers (such as Medicare, Medicaid, and food and nutrition programs), and the smaller economic needs of the elderly (the elderly face fewer day to day expenses than the non-elderly) are considered, the picture looks particularly bright for the current elderly. Because these same data sources also indicated that the elderly's wealth holdings were among the highest of any group, the economic status of the elderly in the previous two decades was quite high.

If one looks beyond group aggregates, however, a different picture emerges. As discussed previously, the elderly are a diverse group in terms of their income and asset levels, and in terms of their healthcare needs. While rates of elderly poverty are lower than rates for the non-elderly, studies have shown that many elderly will experience at least one spell in poverty, and that the elderly have fewer chances to exit poverty than the non-elderly. Some elderly groups, particularly elderly women, suffer from relatively high rates of poverty, have relatively small incomes, and possess few assets other than their homes. Whether rich or poor, all elderly face substantial risks of entering nursing homes and staying in them for long periods of time. While pre-funding these expenses through LTC insurance and Continuing Care Retirement Communities is becoming more common, the elderly as a whole still have little insurance against the risk of the severe financial burden associated with nursing home entry.

Poverty and poor health are strongly correlated, ceteris paribus, yet the relationship between these two conditions is not at all clear. The correlation between elderly poverty and poor health may be partially explained by the lower lifetime earnings for individuals in poor health, the large healthcare expenditures for those with disabilities, and differences in lifestyles and accessibility correlated with economic status. Future research which better isolates the directions of causality between elderly poverty and poor health will provide policy-makers with more information for evaluating existing and future programs for the elderly.

While our discussion of the competing economic theories of elderly consumption and saving is brief, the reader should come away with an understanding of at least two points. First, no one theory can fully explain savings behavior--individuals save and dissave for life-cycle reasons, precautionary reasons, and bequest reasons. Part of the difficulty with empirically testing hypotheses of savings behavior is that many modified life cycle and precautionary savings theories are easy to reconcile with any set of evidence. Second, most of the tests of these theories requires longitudinal data, as they are by their very nature dynamic theories of consumption and saving.

An understanding of consumption and savings behavior is vital for evaluating policies and programs which affect the financing of long-term care. Economic theory suggests that individuals will adapt their consumption and savings behavior based on their expectations of the future--e.g., if individuals believe the government will subsidize long-term care they may lower their rate of savings and/or have a lower propensity to pre-pay for long-term care. Empirical evidence supports the theory that government "safety nets" (i.e., Social Security, Medicare, and Medicaid) lower rates of savings.

II. IMPORTANT GAPS IN OUR KNOWLEDGE OF THE INCOME AND WEALTH OF THE ELDERLY

After reviewing a survey of this type, one logical question occurring to many readers may be "where do we go from here?" Perhaps this question might best be answered by

indicating some of the more prominent gaps in our current knowledge. Of particular interest are areas that lend themselves most easily to new research.

As our survey of this literature indicates, except for studies utilizing the CPS and SIPP, many empirical studies of the economic status of the elderly and elderly savings behavior are growing increasingly out-of-date. This is especially true regarding studies utilizing longitudinal surveys, as longitudinal surveys are more expensive to undertake and are thus conducted less often. Researchers have used and in some cases continue to use data from the 1970s and 1980s to study issues concerning the income and wealth of the elderly. Since more current data has recently been made available, updating the most basic research, such as cross-tabulations of income and wealth measures by the personal characteristics of the elderly--including their ages, gender, marital status, etc.--would be a valuable first step.

In the companion piece to this report, we produce the cross-tabulations described above using two more recent longitudinal data sources. These two data sources are the 1983-1992 Survey of Consumer Finances (SCF) and the Panel Study of Income Dynamics (PSID).[54] While neither data source collects data exclusively for the aged population, each has a large enough sample to allow us to concentrate attention on the income and wealth of the elderly. Until recently, the PSID has had a relatively small number of elderly. However, the sample of elderly has steadily increased as the participants have continued to age. Both data sources, and particularly the SCF, also include extensive and detailed information on a wide variety of income and asset measures and sources.

Another short-coming of many previous empirical studies was their reliance on cross-sectional data. Income and wealth measures often change substantially over time. For the elderly, many of the most important questions surrounding the economic status are dynamic. For example, do the elderly consume their assets to maintain their consumption, as is predicted by the life-cycle theory? How does elderly economic status change through time?

[54] The PSID has been conducted annually since 1968, however, the 1994 data have not yet been publicly released and only preliminary data (i.e., data that have not been "cleaned up") for the 1993 panel has been released.

Why do the elderly enter poverty, and how do some elderly manage to exit poverty? To answer these questions, researchers clearly need access to longitudinal, panel data sets that follow a random sample of elderly individuals through time. This is another important reason we will use the SCF and PSID in our subsequent empirical research for this project. The SCF interviews the same sample of households every three years -- in 1983, 1986, 1989, and 1992. The PSID also tracks the same sample of individuals, and has been doing so each year from 1968 to present.

Another important area for future research is whether those individuals currently saving for retirement--the baby boom generation--are accumulating sufficient wealth to maintain their current economic status. Although current research shows that baby boomers have saved more than their parents did at their age, baby boomers will likely not be as "lucky" as their parents. The current elderly enjoyed substantial gains from the high inflation during the 1970s which erased much of their mortgage debt and large increases in the relative price of housing created a windfall for many of the current elderly. In addition, the elderly benefited from the large expansion of the Social Security and Medicare programs, which individuals currently saving for retirement might not enjoy. More research will help us to know whether the lifetime savings behavior of the current elderly is applicable to those currently saving for retirement; and if so, if it will result in sufficient wealth for the current non-elderly to maintain their economic status in retirement.

For this reason, we believe it is worthwhile to revisit current, often conflicting empirical theories of elderly savings behavior with new data sources. In particular, we think it is important to assess a sophisticated life cycle theory of elderly consumption and savings. This analysis of the life cycle theory should use current estimates of key parameters of the life cycle model taken from existing empirical studies (e.g., mortality, real wage and productivity growth, interest rates, the level of risk aversion, and the rate of time discount) to simulate consumption and savings paths of the elderly from a base year to some future endpoint. One can then compare the actual pattern of savings and consumption with predictions from the model. If the life cycle model cannot closely simulate actual patterns of elderly wealth and savings using

plausible values for its key parameters, this suggests that the basic life-cycle model is flawed in some way, and may need to incorporate other features (e.g., incorporating the risk of catastrophic medical expenses and/or a bequest motive, etc.) or be replaced by another theory.

APPENDIX:
DATA SOURCES AND METHODOLOGIES USED IN DIFFERENT EMPIRICAL STUDIES

This appendix contains a more detailed description of the data used in six studies referenced in the main body of this report. This additional information is provided so the reader can better assess the findings presented in this report. Some information is provided regarding the methodology used by the authors, but readers interested in the technical estimation techniques used by the authors are referred to the original articles. These six studies are presented in roughly the same order they are presented in the main report.

ICF (1984)

A 1984 ICF study uses the March, 1981, Current Population Survey to estimate the economic well-being of the aged compared to the non-aged. The 1981 CPS is a representative cross-section of over 60,000 households, of which over 13,000 are headed by an individual aged 65 years or older. The CPS collects no information on wealth, but includes data on the following income sources: 1) earnings; 2) pension income; 3) Social Security and railroad retirement; 4) asset income from interest, dividends, estates, trusts and rents; 5) public assistance -- both cash and in-kind transfers; 6) Veteran's and Work Related Benefits -- the latter including unemployment insurance and workmen's compensation; and 7) other income. It also indicates whether the individual's household owns their home. Economic data from the previous year (1980) are linked to the current year's personal and demographic data.

This study values assets, home equity, the contributions of employer benefits and pensions, and in-kind transfers (primarily Medicare for the elderly, and food stamps, Medicaid, and public housing for all groups). For assets, the stock of assets needed to produce the reported asset income at average rates of return is computed. Since the CPS only indicates home ownership, home equity in owner occupied housing has to be imputed. The 1976 Survey of Education and Income is used to determine average home equities for individuals of different ages, sex, education, and marital status. These assets are converted into an annuity

to determine the value of the income stream they can generate, which varies with age -- older individuals receive higher income streams for the same level of assets as they are nearer to the end of their expected length of life. This method differs from calculating an imputed stream of rental income on home equity, the typical approach used by other studies.

There are four types of in-kind transfers listed in the CPS: 1) food stamps; 2) public housing assistance; 3) Medicare; and 4) Medicaid. For only one of these four categories, food stamps, is the size of the transfer (e.g., the direct cost to the government) recorded by the CPS. The direct costs of each of the other three categories had to be imputed. For public housing assistance and Medicare, the government's direct cost per recipient is estimated using the techniques of Borzilleri (1980). In the case of Medicaid, the CPS underestimates the number of eligible recipients, so eligibility is determined in the following way: 1) if the CPS lists the person as eligible, the person is considered eligible; 2) all recipients of AFDC or SSI are Medicaid eligibles; and 3) persons whose family incomes fall below their states' Medicaid thresholds are declared eligible. The direct costs per enrollee is calculated for each state for four different age groups using state Medicaid data.

The direct costs to the federal and state governments of these in-kind transfers may overestimate the value of the transfer to the recipient. To correct for this, the 1972-73 Consumer Expenditure Survey (CEX) is used to determine the budget share for each of these goods (e.g., food, housing, and medical care) in U.S. households. Suppose that the share for food is 24 percent. For families receiving food stamps, the "value" of the food stamps cannot exceed that budget share. For example, if a food stamp family has an income of $6,000 (including the direct cost of their food stamps to the government), the maximum value of the food stamps is .24*$6,000 = $1,440. The minimum of this value and the direct cost to the government is then taken to be the value of the transfer (e.g., if the government cost is $1,300 in food stamps that is the value to the family, but if the government cost is $1,500, the food stamps are "worth" $1,440).

The amount of taxable income is then estimated from the CPS. After estimating the fraction of individuals who filed joint and separate returns, and their number of dependents, the post-tax income for each family is determined.

This study also calculates incomes corrected for family size using the weights determined by Danziger et al. (1982). These family size weights are presented in the following table.

Family Size Weights		
Size of the Family	**Age of the Head**	
	Under 65	65 and Over
One	0.55	0.42
Two	0.66	0.64
Three	0.87	0.75
Four	0.95	0.83
Five	1.03	0.87
Six	1.07	0.91
Seven	1.11	0.95
Eight	1.15	0.99
Nine	1.18	1.02
Ten	1.21	1.05
Eleven	1.24	1.08
Twelve	1.27	1.11

These weights are used to divide the family income so that families of different sizes (and ages) can be compared. For example a $10,000 income for an elderly family of 2 is worth $10,000/0.64 = $15,625.

Replacement Rates: Fox (1982) And Boskin And Shoven (1987)

The 1969 to 1979 Longitudinal Retirement History Survey (LRHS or RHS) is one of the most widely used data sources for longitudinal studies. Over 11,000 individuals aged 58 to 63 at the time of survey in 1969 are re-interviewed every two years until 1979. Income and wealth data are for the year immediately prior to the survey year (i.e., 1968 economic data are linked

to the 1969 individual characteristics and demographic data). Note that not all of the survey members are over age 65 for the entire period, and no individual is over the age of 73.

While both of these replacement rate studies use the LRHS, each obtains very different estimates of the replacement rates of the elderly. Part of this difference can be explained by the fact that Fox did not have access to the last wave (1979) of the LRHS. Rising elderly incomes during the late 1970s increase replacement rates by the end of the decade. In addition, assumptions about pre-retirement earnings vary in the two studies. In constructing his estimates, Fox adjusts career earnings with a wage index, which may overstate career lifetime earnings and thus underestimate replacement rates. Boskin and Shoven make a rough estimate of the lifetime expenses of children and deduct all of these expenses from pre-retirement earnings. The rationale for this choice is that while the utility derived from having and raising children is spread throughout one's entire life, the costs of child rearing are borne almost entirely before retirement. Netting out these expenses "levels the playing field."

Also, Boskin and Shoven feel that part of any income stream's value is its future certainty. That is, an income stream which pays $10,000 with certainty is preferable (for most people) to one paying $20,000 with probability one half. In Shoven and Boskin's opinion, Social Security is a more certain source of income than earnings, considering it is inflation indexed; its value is upped roughly 10% to account for its certainty advantages.[55]

Boskin and Shoven's other primary departure from Fox involves replacing Mid_4 and $High_3$ earnings with average lifetime earnings. Fox analyzes the earnings of the individual in the ten years prior to retirement,[56] and uses the average of the four middle (Mid_4) or three highest ($High_3$) years as his base. Boskin and Shoven believe that these latter measures are an overestimate of actual lifetime earnings and resources. All of these adjustments cause

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[55] In his review of their work, Gustman takes exception with this assumption of Social Security's "certainty." While Social Security is indexed, Gustman feels that benefit levels themselves are uncertain (e.g., legislation increases them substantially during the 1970s, and will lower them for early retirees next century).

[56] These earnings are indexed to a common base year using a wage index.

replacement rates to increase dramatically, explaining the discrepancies between Fox's and Boskin and Shoven's respective estimates.

Eargle (1995)

The Survey of Income and Program Participation (SIPP) is a longitudinal, household-level survey designed to obtain information on federal program participation. The first survey was undertaken in October, 1983, with a new panel started every year. The sample size varies from 12,000 to 20,00 households per panel.

Each household participating in the survey is interviewed in nine waves, conducted at four month intervals, over a period of 30 months. Some interviews are conducted in person, while others are conducted by phone. Persons who moved to a new address were interview in person for those interviews designed to be collected in personal interview, unless the individuals moved to an address more than 100 miles from the SIPP sample area. If the individual moved more than 100 miles away, a telephone interview was attempted.

The survey consists of three basic elements: 1) a control card used to record the basic demographic characteristics of each member of the household during the initial survey; 2) a core section asked during each survey which records labor force activity, participation in government programs, and income received the four months between surveys; and 3) various topical modules that are introduced during selected visits. Eargle uses data from the 1986 and 1987 panels of the SIPP, which consists of data gathered between January and May of 1988. She compares these 1988 data with data collected during the 1984 panel.

One problem with household surveys is that they tend to underreport income and assets. When asset data gathered with the SIPP is compared to Federal Reserve Board (FRB) balance sheet data, the SIPP is consistently lower. The ratio of SIPP to FRB net worth estimates is 0.84 using 1988 data and 0.92 using 1984 data (Shea, M. 1995). In addition, SIPP data overstates home equity by approximately 30 percent and vehicle equity by 43 percent. SIPP data understates equity in business and rental property and financial assets by

25 percent, and unsecured debt by 35 percent. Shea also notes that wage and salary income estimates tend to be lower in SIPP than in the CPS, possibly because persons tend to report net income rather than gross income in the SIPP.

Net worth measured here is wealth minus unsecured debt. Wealth includes the market value of equity in homes, businesses, farms, rental property, vacation homes and other real estate, and financial assets. Financial assets are checking, savings, and money market accounts, stocks, bonds and mutual funds, IRA's and Keoghs, accounts receivable , debts held, and other financial assets. Social Security and pension wealth are not included. Unsecured debt includes credit cards, medical bills, loans from institutions and individuals, and education loans. Consumer durables are not treated as assets when calculating wealth, but the debts incurred for purchasing these items are included as part of unsecured debt.

Coe (1988)

Coe uses the Panel Study of Income Dynamics (PSID) from 1970 to 1983 to determine the rates of exit out of poverty, and the duration of poverty, for the elderly. The PSID is a large, nationally representative data set, which began collecting data in 1968; data collection is still continuing. In 1983, 1,099 individuals age 65 years old and over are in the PSID. Coe considers data for individuals 65 years old and above in each year (1970 to 1983) of his sample; an individual who is 70 in 1983 will have five years of information, while someone aged 75 in the same year will have ten. Poverty rates will be underestimated, as only non-institutional survivors (people must be alive in 1983) are studied.[57] The following equation drawn from Coe relates poverty exit rates to the length of poverty spells:

$$D_1 = p_1 \text{ and } D_t = P_t(1 - \sum_{j=1}^{t-1} D_j)$$

[57] Nursing home patients and decedents have above average poverty rates.

Exit rates are the probability (P(t)) of leaving poverty for the aged and non-aged (over and under the age of 65) after a certain number of years (t) in poverty.[58] Duration rates are based on steady-state assumptions -- no spells are cut short by death. Duration is calculated by the preceding set of equations, where D(t) is the percentage of poverty spells lasting t years, and P(t) is the chance of exiting a poverty spell t years old. Durations are truncated at 15 years.

Hurd (1987b)

Hurd constructs a simulation model to predict widows' lifetime experience of poverty. His model maximizes individual utility where the age at death is uncertain. He uses 10 years of LRHS data to estimate the model's parameters with the 1979 wave as starting values. A fundamental problem in estimating utility for widows is solving for the consumption patterns of couples prior to the husband's death, which depend critically on the future mortality of elderly, married men. To get around this difficulty, Hurd uses data from the LRHS to project male mortality, and thus new widows. Couples are then expected to consume their income and 1.6 percent of their wealth in each period (the basic finding for married couples in the LRHS). This produces initial wealth and income conditions for widowed women. Using a model similar to Yaari (1965), utility is a function of the consumption path (constant relative risk aversion (CRRA)), mortality, bequeathable wealth, the time path of annuities, and the bequest motive. Wealth other than bequeathable wealth, such as annuities or housing, is not a choice variable because changing the stock of this wealth is considered by Hurd to be too difficult by Hurd.

In the utility function below, alpha (α) is the parameter of relative risk aversion.

$$U(c_t) = \frac{(c_t)^{1-\alpha}}{1-\alpha}$$

[58] Note that the duration of poverty for the aged is just the number of years of poverty experienced while over 65 years old; for example, a five year spell of poverty starting at age 63 is just a three year spell of aged poverty. Thus, poverty exit rates are overestimated and durations, underestimated for the elderly.

Hurd estimates the parameters for his simulation with both non-linear least squares (NLLS) and non-linear two stage least squares (NL2SLS).[59] In contrast to other studies which estimate or assume alpha to be 3 to 4, Hurd estimates much lower alphas of 0.7 (NLLS) and 1.1 (NL2SLS). A lower alpha implies that widows consume their wealth more rapidly.

Lewin/ICF And The Urban Institute (1991)

Researchers at Lewin/ICF and the Urban Institute use a statistically matched sample of the 1984 Consumer Expenditure Survey and the 1984 Survey of Income and Program Participation to determine what fraction of different elderly groups can afford to pay for one, two, or three years of nursing home care. Four different definitions for elderly couples and three for elderly single individuals are used; each definition involved an elderly family's devoting different amounts of their assets and consumption to pay for the nursing home stay.

Elderly Couples

- **Lifestyle protection** -- Housing, health, and personal insurance expenditures are assumed to remain as is; other expenditures are protected for the community spouse at up to two-thirds of the pre-institutionalization level; assets and asset income are left intact so this level of resource can be maintained indefinitely.

- **Gradual lifestyle reduction** -- Assumes the expenditure protections listed above, allowing the community spouse all health, housing, and personal insurance expenses, as well as two-thirds of everything else. It also makes available all financial assets to be spent down over the length of stay in a nursing home; a family can afford one year of care if their available income plus one half of their financial assets is greater than the cost of a year stay in a nursing home; a family can afford two years of care if their available income plus one quarter of their financial assets is greater than the cost of a year stay in a nursing home; a family can afford three years of care if their available

[59] The wealth variable appeared to be subject to considerable measurement error.

income plus one sixth of their financial assets is greater than the cost of a year stay in a nursing home.

- **Lifestyle reduction --** Protects housing, health, and personal insurance expenditures but does not protect expenditures for luxury items (alcohol, tobacco, and cash contributions) and protects only half of all other expenditures. Lifestyle reduction also makes financial assets available to spend-down in the same manner as does gradual lifestyle reduction. This is a maximum amount that a couple could be required to give up to pay for long term care. Since tobacco and alcohol expenditures would have to be foregone upon admittance to a nursing home, this definition requires that the spouse of the nursing home resident make the same sacrifice.

- **Spousal impoverishment --** This models the LTC provision of the Medical Catastrophic Care Act. The spouse at home is allowed to keep income equal to 150% of the poverty level and half of all financial assets up to a maximum of $60,000 (the spouse is entitled to fully protect $12,000 worth of financial assets if their financial assets are less than $24,000).

Elderly Singles

- **Lifestyle protection --** This lower bound definition would enable the nursing home resident to maintain an owned home by excluding expenditures on housing (aside from purchases of new household equipment and furnishings) from available resources. The individual is also assumed to continue current spending on insurance, personal care needs, reading, apparel and services, and miscellaneous expenses. No financial assets are included in this definition so this level of resource use can be maintained indefinitely.

- **Gradual lifestyle reduction --** This definition is the same as the lifestyle definition except that all financial assets are made available to be spent down over the length of stay in a nursing home; an individual can afford one year of care if their available

income plus all of their financial assets is greater than the cost of a years stay in a nursing home; an individual can afford two years of care if their available income plus one half of their financial assets is greater than the cost of a years stay in a nursing home; and an individual can afford three years of care if their available income plus one third of their financial assets is greater than the cost of a years stay in a nursing home. If an individual can afford a one year stay in a nursing home based on their available income and financial assets, then for following years any home equity they possess becomes available to help pay for nursing home care.

- **Lifestyle reduction --** This upper-bound definition is the same as the gradual lifestyle reduction method except that the individual's expenditures on housing, personal insurance, and life insurance are no longer protected. Financial assets are available in the same manner as they are for the gradual lifestyle reduction definition, and home equity can be used to pay for care after the first year in the nursing home. This definition has an inverse relationship to spending down for Medicaid; all individuals who cannot afford to pay for a year of care under the lifestyle reduction formula would spend-down to Medicaid in one year, the individuals who can afford one year of care but not two would spend-down to Medicaid in two years, and the individuals who can afford two years of care but not three years would spend-down to Medicaid in three years.

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